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Observations ON THE TREATMENT OF GUNSHOT WOUNDS OF THE SPINE.

BY ALFRED J. HULL, F.R.C.S.,
MAJOR, R.A.M.C., BRITISH EXPEDITIONARY FORCE, FRANCE.

WHEN considering the place in the theatre of war at which spinal injuries should receive operative treatment it is necessary to weigh the advantages of early operation, which will limit the spread of septic infection and relieve the central nervous system of deleterious pressure, against certain disadvantages. These injuries require careful examination, and in some cases prolonged observation, before they are submitted to operation; a specially trained staff is required for their operative and after treatment. It is usually considered desirable that the patients should remain in the hospital in which they are operated upon for a considerable time. I think it is extremely doubtful that transport will be more injurious after an operation than before it. Of one thing I am convinced, and that is that the relief from pain which follows successful laminectomy places the patient in a much better position to withstand the strain of the journey. It is inevitable that, with the exception of certain conditions in siege warfare, when special units can be organized for particular branches of surgery, the treatment of these cases will have to be relegated to the base hospitals.

The following case is not without interest from the fact that the missile was removed from a portion of the vertebrae inaccessible by laminectomy:

CASE I.

Pte. C. was wounded by a rifle bullet, which entered the right loin 2 in. below the extremity of the last rib, and fracturing the transverse process of the second lumbar vertebra, lodged to the right of the body of the same vertebra. The patient suffered from severe local pain, which radiated down the branches of the lumbar plexus. There was partial motor and sensory impairment of the right leg. Five days after the injury a long incision was made in the right loin and peritoneum exposed by muscle splitting. A hand was then inserted by a retroperitoneal route and the fractured vertebra felt for as a guide to the bullet. A scoop was passed down the same track and the bullet removed. A counter-incision was made from the back to the site of the bullet and the cavity drained by "salt sac"—a tube made of gauze and bandage filled with common salt. Pain disappeared after the operation. Fourteen days later the wounds were healed, full sensory and motor control had returned, and the patient had entirely recovered.

Wounds of the spine may be extensive, the whole section of the cord being involved, and conductivity of the cord lost. Such cases present all the unfavourable phenomena associated with fracture-dislocation of the spine as met with in civil practice, together with the additional danger of septic infection. These cases are obviously unsuitable for operative treatment, but it is otherwise with many cases of spinal injury.

The following case reported by Captain Hepburn illustrates a type of inoperable cases complicated by concomitant injuries:

CASE II.

Wounded by a fragment of high explosive shell; was admitted about three days later with an irregular wound which would admit two fingers, situated about 2 in. to the right of the second lumbar spine. The wound was very septic, with extensive surrounding cellulitis. *X* rays showed the shell fragment lying in front of the left margin of the second lumbar vertebra, with a fracture of the body.

The patient became very toxic and extremely jaundiced, with severe abdominal pain and vomiting, and died ten days after being wounded.

At autopsy the shell fragment was found between the two layers of mesentery of the small bowel, which was extremely thickened. There was extensive retroperitoneal effusion of blood, a fracture of the body of the second lumbar vertebra, laceration of the top of the right kidney, but no laceration of the peritoneum and no injury of the liver.

Considering the results of spinal injuries as a whole, it must be admitted that they have not been encouraging, but it will probably be found that better will be obtained in the future. At the present time improvement has been noticeable in the results of treatment in these injuries. The cause of disappointment in the past was partly due to a lack of differentiation between hopeless cases and cases likely to benefit by operative treatment and partly to delay in operation. Spinal operations, to be successful, must be performed at an early stage before any vital changes have occurred in the cord. The earlier circumstances allow the cases to be operated upon, the better will be the results. By delaying the operation, cases lose their chance of recovery in two ways—sepsis spreads, and pressure upon the nerve tissue causes vital changes in the cord. An early operation will remove the septic focus and relieve the pressure upon the nerve tissue, thus obviating the main causes of permanent nerve tissue lesions.

We have had many opportunities of witnessing the relief which follows the removal of a foreign body from the central nervous system. A foreign body, whether a missile or a depressed fragment of bone, exercises a striking effect upon the circulation of the brain and cord, and coincident with its removal the previously non-pulsating tissues begin to vibrate. Good circulation is essential to the recovery of injured tissue, and early operation affords the best chance of relieving the interference in an injury to brain and spinal cord.

We know that by operation planned to remove septic tissue and to relieve the pressure of fragments of bone or foreign bodies we can effectively deal with depressed compound fractures of the skull, and that by adopting the same principle we can excise a penetrating wound of the knee, remove infected bone, and obtain aseptic result. It would appear rational to apply the same principle to injuries of the spine, and, with certain reservations, this can be done. The spinal injury differs from the head injury in the greater susceptibility of the spinal cord and its lack of regenerative power. The small area of the spinal cord renders an injury to the cord of much more serious importance than an injury to the brain. An injured area in the brain may be recoverable, where an injury of corresponding size to the cord may destroy the whole section of the cord.

It would appear justifiable to operate upon spinal injuries when a foreign body is present and has been shown by *x* ray localization to be in an accessible position. Septic trouble is almost certain to follow a foreign body lodged within the spinal theca and its removal will not add materially to the patient's danger. Severe pain alone is occasionally a sufficient reason for operating.

The principal indications which make operative interference justifiable are evidence of some remaining conductivity of the cord, evidenced by the presence of some motor and sensory function in the part below the injury. Here the transverse lesion of the cord is incomplete, and the removal of pressure may be followed by great improvement. The circulation is restored and function is recovered.

CASE III.

Sgt. W. was wounded on October 24th and admitted to a base hospital on October 26th. There was a clean entrance wound at the back of the neck 2 in. to the right of the spinous process of the sixth cervical vertebra, and an exit wound in front, below the margin of the lower jaw on the left side.

The symptoms present were left hemiplegia and paralysis of the right arm, loss of sensibility on the left side, and hyperaesthesia of the right arm and foot. The presence of conductivity of the cord and the evidence of fracture of the fifth cervical vertebra were considered sufficient reason for operating.

A long incision was made over and down to the spine of the cervical vertebrae and the spinous processes cleared of muscles. Retractors were placed in the grooves on either side of the spines and the muscles retracted; the laminae were exposed and the fracture of the fifth vertebra discovered. The spinous process of this vertebra was fractured and the lamina on the left side was fractured near the articular process. The spinous processes of the vertebrae above and below were cut off. The right lamina was divided and the laminae of the damaged vertebra removed. A detached fragment of bone was found pressing upon the spinal theca. The dura was not lacerated and pulsated normally. The depressed fragment was removed and the wound sutured. The right arm recovered rapidly, and the following day sensation was normal. The patient suffered from considerable pain in the right arm after the operation. The operation wound healed by primary union.

The patient slowly recovered the use of his limbs, and three weeks after the operation had completely recovered, with the exception of partial paralysis of the left arm.

Cases of injury to the cauda equina have a much more hopeful outlook. The cauda equina bears a greater resemblance to the peripheral nerves than the spinal cord, and its nerve roots have been cut and sutured in animals, with complete recovery of function later. Tuffier

operated upon the first two lumbar roots, which had been divided by a bullet wound, and obtained perfect recovery.

The principal points by which injury of the cauda equina can be differentiated from injury of the cord are:

The position of the wound.
X ray may show a missile or fracture of the lower lumbar vertebrae.
Asymmetry of the symptoms.
Severe pain.

Pain and hyperaesthesia are indicative of injury of nerve roots rather than cord. Abolition of the deep reflexes points to a lesion of the nerve roots, either the efferent or afferent fibres being injured. The reflex centre in the cord may be injured in some cases, but the loss of conductivity will then be complete. Limitation of symptoms to a small portion of the segments of the lumbar-sacral region denotes a caudal lesion. A rapid increase of symptoms from segment to segment will denote a medullary lesion. A slow involvement of additional segments will point to a caudal lesion.

General Considerations as to Treatment.

Three lines of treatment are indicated—prevention of sepsis, removal of gross pressure upon the spine, and the prevention of complications which threaten life.

The most dangerous complication associated with spinal injury is septic infection of the genito-urinary tract, and this can usually be prevented by adequate care in the passing of catheters and by the use of urinary antiseptics and twelve-hourly lavage of the bladder. A solution of quinine sulphate, 1 or 2 grains to the ounce, has been recommended for this purpose. It is important that a catheter should be passed when the patient arrives at or leaves a hospital, and that instructions be given for the passage of this instrument during transport. The risk of sepsis is not added to by irrigation of the bladder once it is necessary to catheterize.

The following classification of injuries may be used from the point of view of treatment:

1. Injuries which have perforated the spinal theca.
2. Injuries which have not perforated the spinal theca.
3. Concussion of the spinal cord, which may be produced by the passage of a bullet through the vertebrae without actual pressure of the missile or bone fragment.

A trauma of the spinal column, even of a comparatively slight nature, may produce injury to the cord itself. The differentiation of concussion from organic injury has an important influence on treatment. A bullet passing through the body of a vertebra or merely touching one of the processes may produce concussion of the spine, presenting symptoms almost indistinguishable from an organic lesion. Neurologists rely mainly upon the improvement of the symptoms when distinguishing between the two conditions.

In severe concussion, paralysis of the body below the lesion takes place, the reflexes are lost, sensation is diminished, and the sphincters are paralysed. The chief signs by which the lesion can be differentiated from pressure upon the cord are as follows:

The transient nature of the symptoms; soon after the injury the patient begins to recover and there is a gradual return of function.

The symptoms usually correspond to those of a complete transverse lesion, and there is a complete loss of conductivity of the cord.

An *x*-ray examination will be negative.

The careful examination of the nervous system, the observation of the cause of the symptoms, together with an *x*-ray examination, will usually differentiate cases of concussion from cases suitable for operation, and prevent an unnecessary operation being undertaken. In some cases the diagnosis will only be made in the course of an exploratory operation. In cases in which the symptoms are practically indistinguishable from gross injury, an operation would appear to be justifiable on the grounds that it will do no damage and waiting will inflict irreparable damage upon cases suffering from the effects of pressure. Moreover, when a bullet has caused concussion, it has in all probability depressed bone also.

Pressure upon the Spinal Theca by Missiles, Depressed Fragments of Bone, or Extra-dural Haemorrhage, without Perforation of the Theca.

Here the outlook is most hopeful if the operation is performed before the pressure has caused irreparable damage to the nerve tissue. Laminectomy should be performed, and the missile or depressed fragments removed.

Complete recovery occurred after the removal of a shell fragment which had fractured the laminae of the fifth cervical vertebra, and depressed bone to the extent of half an inch square. Signs of recovery began to appear the day after the operation. The patient left for England with complete recovery of function.

Spinal Haemorrhage.

Haemorrhage may be produced by indirect violence, such as fracture of the body of a vertebra by a high velocity bullet, or by direct injury to the theca by a missile or bone fragment.

Extra-dural haemorrhage or haemorrhage into the spinal theca may occur, and both conditions may be present in some cases. Cases of haemorrhage without other spinal lesions, such as concussion or pressure on the theca by foreign bodies or bone, are rarely seen, but haemorrhage in a degree sufficient to cause symptoms of pressure is often present with other lesions. In one case, operated upon for a bullet wound in the lower dorsal region, there was paralysis of both legs and of the sphincters; signs of conductivity of the cord were evidenced by the presence of sensation below the injury. Laminectomy was performed and a small fragment of bone discovered pressing upon the front of the cord. The dura was not lacerated and was pulsating feebly. When retracting the cord to remove the fragment of bone, a considerable amount of clot was squeezed out of the spinal canal, and at once the dura began to pulsate normally.

The treatment of spinal haemorrhage will usually form part of the treatment undertaken for the relief of pressure from some other cause. Cases in which spinal haemorrhage played an important clinical part have been rare in our experience. The optimistic view that haemorrhage into the spinal theca will recover spontaneously is more than doubtful, and such cases would appear suitable for exploration.

Injuries to the Spine with Penetration of the Dura.

The condition is comparable to that of depressed fracture of the skull, with particles of indriven bone penetrating the cranial meninges and lacerating the brain. Sepsis is exceedingly likely to extend to the spinal meninges along the bullet track and depressed bone. The most excruciating pain may be caused by depressed particles of bone, and the advance of sepsis mercifully ends the patient's suffering by causing spinal meningitis.

The only successful treatment is the early removal of the peccant fragments. Expectant treatment allows the patient to run risks out of all proportion to the risk of an operation. If spinal sepsis does not end the patient's sufferings an infection of the genito-urinary tract usually occurs, and in those rare cases in which the patient survives these dangers he often remains a hopeless paralytic.

Undertaken at an early stage by specially experienced operators, the surgical treatment of this condition should prove if not brilliant, at least a means of saving a fair portion of the victims.

It is of the utmost importance that the operation be carried out under a local anaesthetic, or shock, haemorrhage, and chest complications will levy their toll. The operation begins as an ordinary laminectomy operation, except that if the bullet track be accessible it should be excised. In some cases the results can be obtained without any bone-cutting at all, the fractured lamina being merely removed with forceps and scissors.

Circulatory disturbances are at work in these cases, the pressure of the fragments upon nervous tissue exercising an untoward effect upon the circulation of the central nervous system. The importance of the early relief of this interference with the circulation must be fully recognized if a favourable result is to be obtained. The delicate nerve tissue of the cord rapidly receives irreparable injury from pressure, the patient is worn out by pain, and septic infection extends as a result

of delay in operation. Operative treatment may be contra-indicated in some cases. Severe injury to other organs and total loss of conductivity of the cord will usually negative operative treatment.

Foreign Bodies within the Spinal Theca.

In addition to any damage the missile may have inflicted on the cord or cauda equina, the danger of sepsis makes the injury most serious. The missile will almost certainly have carried septic matter into the wound, and will form a septic focus within the theca. Early removal of the missile gives the patient his only chance if the missile be septic.

The results of removing septic missiles from within the cranial meninges is sufficiently satisfactory to make such operations on the spine hopeful if performed within a reasonable time of the injury. In one case a shrapnel bullet was removed from within the spinal theca in the lumbar region seven days after the injury. The patient was paraplegic before the operation, and great improvement in motor power had taken place before he left hospital.

The interest of the following case lies in the fact that complete recovery followed an operation upon a septic wound complicated by a septic compound fracture in the vicinity of the spinal wound. The case appeared to be almost hopeless, as septic meningitis seemed almost certain to occur. In this case, as in all spinal cases, urotropine was administered from the beginning.

CASE IV.

Pte. M. was wounded in several places by fragments of high-explosive shell. Two fragments lacerated the skin over the fifth dorsal spine, fractured the spinal laminae, and entered the spinal theca. A larger fragment inflicted a large lacerated wound over and fractured the left scapula. Partial motor and sensory paralysis of both limbs was present, and the patient suffered from violent pains in the right leg. The bladder and rectum were normal. Five days after the injury the compound fracture of the scapula was in a most septic condition, and pus and cerebro-spinal fluid were exuding from the spinal wound. Two metallic foreign bodies were localized within the spinal canal. The septic compound fracture of the scapula was treated by dressing with gauze soaked with hypertonic salt solution, the dressing remaining in the wound, untouched, for four days. The perforating wound of the spine was excised, the track of the missile having been packed with gauze soaked with tincture of iodine. The laminae of the fifth and sixth dorsal vertebrae were exposed and a comminuted fracture of the fifth arch discovered; this and numerous depressed fragments of bone were removed. A laceration of the dura was present; a scoop passed through the laceration detected a metallic foreign body; this missile and some fragments of bone were extracted. The second foreign body could not be reached, so the laminae of the sixth dorsal vertebra were removed, exposing it; the remaining fragment was then removed from the spinal theca. Two small salt sacs were inserted down to, but not into, the spinal theca, and the muscles were drawn together by a catgut suture. The skin wound was partially closed. The spinal wound was well shut off from the septic compound fracture by impermeable material. The entire operation was performed under local anaesthesia.

The patient's limbs were massaged daily, and ten days after the operation he had regained complete motor and sensory functions. The spinal wound was dressed seven days after the injury, the salt sac came away quite easily, and the wound was afterwards dressed daily with 5 per cent. saline solution. A considerable amount of cerebro-spinal fluid escaped from the wound for a fortnight after the operation. The patient suffered from violent pain in his legs during convalescence.

Two months after the injury the patient was walking about completely cured.

Wounds of the Spine causing Total Loss of Conductivity of the Cord.

An irreparable injury has been inflicted upon the cord, and an operation will not lead to any improvement of the symptoms. These cases are comparable to the cases of fracture dislocation of the spine met with in civil practice. They are unsuitable for operative treatment. An exception to this may be made in cases in which the pain is so severe that an operation is worth undertaking for its relief alone.

Exceptionally, it may be possible to prolong a patient's life, although he is foredoomed to death, by undertaking an operation for the removal of sepsis.

INDICATIONS FOR OPERATION IN GUNSHOT WOUNDS.

Cases in which there is Evidence of some Conductivity of the Spinal Cord.—In all cases in which conductivity of the spine remains there is hope of improvement in the functions. An operation will not harm the cases in which the damage to the cord is too extensive to allow of recovery, and will save the lives and functions of the slighter cases.

Pain.—The pain in some spinal lesions is so atrocious that an operation is justifiable, whatever the lesion of the cord.

CASE V.

Fracture dislocation of the first and second lumbar vertebrae, caused by the fall of a trench wall. Motor and sensory paralysis were complete with the exception of slight movement in the toes of the left foot. Retention of urine. The patient suffered excruciating pain. There was little hope of improvement in function, but a laminectomy was considered justifiable for the relief of pain. The pain was immediately cured by laminectomy, and considerable improvement in motor power resulted.

Operations upon Spinal Injuries.—The *x*-ray examination preceding the operation is of the greatest importance. A lateral as well as an antero-posterior plate is always necessary, and if a foreign body is present accurate localization must be carried out. The localization of the foreign body is so important and so difficult to obtain in this situation that special precautions must be taken. No reliance should be placed upon stereoscopic plates when used either in a stereoscope or by squinting. They are liable to represent a foreign body either deep or superficial to a known structure according to the preconceived idea of the observer. In the lumbar region the curve of the spine prevents the close application of a glass plate to the skin; a film should be employed in this situation. It is necessary to place beyond all possible doubt the level at which a foreign body lies. The surgeon must be able to attack the lamina concealing the foreign body with confidence that he is removing the right one. Unnecessary removal of the lamina and dangerous searching will be avoided if the following procedure be adopted:

Under local anaesthesia a deep silver suture is placed at the side of the spinous process of the suspected vertebra. The patient is then *x*-rayed and the wire left *in situ*. During the operation, whether the wire is next to the vertebra concealing the missile or not, it will be easy to identify the correct one, which if not opposite the wire is usually the one above or below. A similar method is to scratch the skin across the suspected spinous process, and lay a needle across the scratch before taking the *x*-ray plate. Some such precaution is to be recommended. Counting the vertebrae during an operation has caused doubt and difficulty even to experienced operators.

Shaving the skin area, cleansing with ether and biniodide, the application of a sterile dressing two hours before the operation, and painting the skin with iodine at the time of operation, has given satisfactory results. Local anaesthesia has usually been employed, in some cases combined with a slight degree of ether or chloroform anaesthesia. The use of local anaesthesia has been found to be so advantageous that other methods have been abandoned. The success of the operation depends largely upon its use. Several cases suffering from severe chest complications have had no ill effect from the operation. Either the prone or the lateral position may be employed; the prone position gives the better exposure of the vertebrae. When the lateral position is employed the lower leg is placed in the extended position, the upper leg is flexed, the knee being bent to a right angle, and a thick hard pillow is placed beneath the bent knee and leg. In this position the patient rests comfortably and firmly on his side. An incision is made in the middle line down to the spinous process. The incision should be a long one, about 8 inches in length. The retraction of the soft parts and exposure of the laminae are much facilitated by a long incision, and the whole operation can be carried out with greater ease. The spinous processes are then cleared on both sides by cutting downwards close to the spinous process, to the laminae through the whole length of the incision. With a pair of strong scissors the remaining muscles attached to the spinous processes are cut and cleared away. When the soft parts have been cleared from the spinous processes throughout the whole length of the wound it will be possible to pass a pair of retractors down to the laminae in the grooves on either side of the spine and retract the erector spinae muscles.

The vertebrae can now be examined; if a depressed fractured lamina is discovered, the spines of the fractured vertebra above and below are cut off and the fracture examined. In some cases the fracture involves the laminae at each side, and these can be removed when the ligamenta subflava have been divided.

The lamina of one side may be fractured, and it may only be necessary to divide the uninjured side, or both laminae being fractured they can be removed without cutting any bone.

The most difficult step in the operation is the division of the first lamina. The lamina must be removed as far as the articular process, but it is not necessary to commence the section at this difficult spot; the lamina may be divided nearer to the spinous process and the remainder of the lamina removed with bone forceps. There are three well-known methods of dividing the laminae, of which the use of the cutting bone forceps is probably the easiest and most convenient. A saw may be used either of the guarded pattern, or a Hey's skull saw. The cut is made with an inward direction in order to avoid the articular process, and the section is completed with forceps. The drilling or trephining method is carried out by cutting a hole in the middle of the lamina with a drill or burr, and completing the section with De Vilbiss or other suitable forceps. The entire division by forceps is rapid and sufficiently easy. Laminectomy forceps, Sargent's craniectomy forceps, or Jansen's bone forceps may be used. Whatever forceps are employed, the surgeon must be practised in the use of the instrument. With well-devised bone forceps the lamina may be bevelled until the edge is very thin and easily elevated. The spinal dura is separated from the lamina by tissue, and is not easily injured with ordinary care. The infiltration of the tissues with adrenalin solution, a long incision permitting easy retraction, and a good exposure of the laminae will greatly facilitate this difficult stage of the operation.

When the spinal canal is opened the condition of the fracture can be further investigated, detached fragments of bone or the missile may be discovered. The spinal canal will sometimes be found to be filled with effused blood, and a continuous stream of saline may be commenced at this stage. The dura is examined, and if uninjured and pulsating normally is not opened. If lacerations are present, depressed fragments of bone or missiles are sought for. The operation is completed by suturing the spinal muscles by one continuous catgut suture and suturing the skin without drainage. The wound is invariably painted with mastisol wound varnish.

Secondary infection and death from meningitis is very apt to follow drained laminectomy wounds when incontinence of urine or faeces is present.

At the conclusion of the operation, and for some days afterwards, the patient is placed flat on his back. The pressure upon the wound is advantageous.

In the dorsal area it is comparatively easy to explore the spinal canal anterior to the cord. One or two nerve roots may be divided with safety in this region and the theca gently retracted. The nerve roots are afterwards sutured with fine catgut. Operations for injury to the cauda equina have given the best results. Any division of the cauda which is discovered should be sutured. The probability of regeneration and recovery of function is considerable.

CONCLUSIONS.

1. The majority of cases of gunshot injury to the spine require excision of the wound and exploration at the earliest favourable opportunity.
2. The diagnosis is not so gloomy as past experience teaches.
3. Local anaesthesia is practically essential.
4. The administration of urotropine should be begun as soon after the injury as possible.
5. The presence of a missile together with severe pain are indications for immediate operation.
6. Accurate localization of foreign bodies is of the utmost moment. A lateral as well as an antero-posterior view is desirable.

REFERENCE.

[1] A. J. Hull: *Surgery in War*, Chapter III.

THE TOXIC EFFECTS OF ETHYLHYDROCUPREIN ON THE EYE.

BY GEORGE H. OLIVER, D.O.OXON.,

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CONSIDERABLE interest has been aroused lately regarding the therapeutic value of the alkaloids and derivatives of cinchona, and attention has been drawn to this in recent numbers of the BRITISH MEDICAL JOURNAL.[1] In a paper by Morgenroth and Levy[2] on the chemio-therapy of pneumococcus infection, the process by which they arrived at the conclusion that the pneumococcus can be destroyed or rendered inert by quinine or its derivatives is described. They showed that in certain infections induced artificially by virulent strains of the pneumococcus the micro-organisms can be destroyed and the lives of the majority of the animals saved by the administration of ethylhydrocuprein. Fränkel[3] used this drug, which is a quinine derivative, in a number of cases of pneumonia, which was then epidemic in Berlin. In describing his results, he said:

> As with the serum therapy of pneumonia, which does not promise much, so with ethylhydrocuprein. This does not appear to be the thing we want, chiefly because it produces a very disagreeable complication, which, though it occurs in a small number of cases, yet is so evident that the drug cannot be recommended for use in practice. This complication is the occurrence of amblyopia, which we observed in 14.3 per cent. of our cases. The single dose prescribed was 0.5 gram, and from 1 to 2.5 grams were administered internally daily. After we became aware of this effect of the drug we did not give above 2 grams a day. The amblyopia disappeared rapidly (two days) on stopping the drug. I have no doubt that, had we continued this treatment, permanent visual defects would have followed. You know that in simple quinine intoxication complete amaurosis occurs. Ophthalmoscopic examination showed well-marked narrowing of the retinal vessels, chiefly the arteries, with reduced visual fields. When at the worst, the patients were able to make out fingers at 1 or 2 metres only.

The complication here described has occurred in a case in which I am interested, but with disastrous results. In the early part of 1915 I was called in consultation to see a man, aged 40, who a month before was extremely ill with pneumonia. His medical man, with the consent of the consulting physician, prescribed ethylhydrocuprein in 5-grain doses, to be taken every three hours. The patient took in all 120 grains.

The day previous to the discontinuance of the drug the patient complained of roaring in the head, partial deafness, and a feeling as though a dark blind had been drawn over his eyes. He was so ill and difficult to understand that these symptoms were considered to be due to meningeal complications. The drug was stopped next day, when it was found that he was quite blind and could not distinguish light from dark.

I found that he had bare perception of light; the right pupil reacted very slightly to light, the left not at all. Pupils two-thirds dilated. Ophthalmoscopic examination showed that the vessels were reduced to fine threads, the arteries being made out with difficulty in the left eye; both discs were quite white. This was in February, 1915, one month after the commencement of the symptoms. I saw him again on March 11th, 1915. My notes are as follows:

> Considerable improvement in vision; can find his way about inside and outside the house, and can distinguish such articles as a knife, fork, or spoon at three metres.
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> On April 3rd, 1915, there is much improvement; V.=R. $\frac{6}{18}$, L. $\frac{6}{18}$; reads J. 4 slowly c L. E. and c R. J. 14; both fields very much contracted; pupils react to accommodation and slightly to light. Colour vision obliterated. Right disc not quite so white, but vessels still attenuated, more so in left eye.
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> On June 5th, 1915, V.=R. $\frac{6}{9}$, L. $\frac{6}{9}$. Ophthalmoscopic examination: Right eye, faint blush on temporal side of disc. Left disc quite white and vessels reduced to fine threads. Pupils both oscillate in a remarkable manner, synchronously, in day and gas light.
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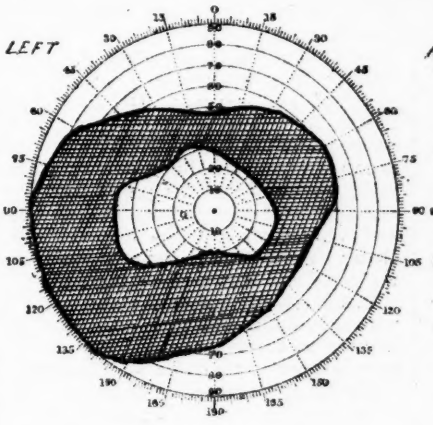
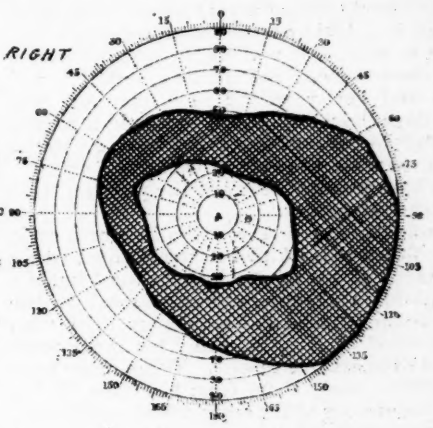
> August 25th, 1915. V. = R. $\frac{6}{18}$, L. $\frac{6}{18}$; near vision = J. 4 c R. and L. Complains of severe pains in the back, which have troubled him more or less since convalescence set in. Attacks last a few days, during which visual acuity is considerably lowered and fields much more contracted, with immediate restitution to former level when pain ceases. Small coloured objects 2 mm. to 3 mm. in diameter not spotted, but with larger objects, such as postage stamps, red and green colours are easily named.

It is impossible to map out the colour fields (Bardsley's scotometer); the patient is so uncertain of the boundary zone. Ophthalmoscopic examination: Discs as before; vessels, arteries, and veins have a well marked double outline, which is carried a considerable distance beyond the disc, and in one or two instances is more distinct than the blood column.

The most striking circumstance is the great improvement made up to June 5th, 1915, which one would have little expected, seeing that the vessels were so narrow and the discs so white, indicative of the destruction, from reduced blood supply, of a large number of ganglion cells in the retina, and the visual fields so much reduced, as shown in the accompanying charts.





I heard recently from the patient's family doctor that the improvement made was not maintained, and I asked the patient to come to my rooms, which he kindly did.

On February 5th, 1916, V. = R. $\frac{6}{36}$, L. $\frac{6}{36}$. Vision began to go down in November, 1915, and steadily declined until Christmas, when he could not see his food on the plate before him. In the second week of January, 1916, he began to improve, and has continued to do so up to date. Ophthalmoscope: Both discs now quite white with no trace of colour; details not discernible. Vessels seem to have increased in size a little, and a few very fine branches may be seen on the discs. Vessels in left eye are smaller than in right eye, and both arteries and veins have a double outline which extends far away from the disc.

Apart from these changes, the fundus is quite normal in appearance. Pupils are dilated and contract very slightly to light and still oscillate. I am afraid there is little hope of this patient being able to earn his own living in the future.

That ethylhydrocuprein is a dangerous drug I have no doubt, and its internal administration is to be carefully avoided. It may happily be discovered that much smaller doses than those given heretofore will suffice to destroy the pneumococcus; indeed, it has been shown by Henry F. Moore[4] in his experimental studies with this drug that "it inhibits the growth of and kills pneumococci *in vitro* in very considerable dilution," and that "the serum of rabbits which have been previously treated with a single dose of ethylhydrocuprein exerts a bactericidal action on, and later inhibits the growth of pneumococci in the test tube." Known also by the name of optoquin, this substance has been used by ophthalmic surgeons in the treatment of serpiginous ulcer of the cornea. Some say it will cure a virulent ulcer in ten days, and others, including myself, have seen no special advantage in its use, while cases have been reported in which the instillation of a 1 per cent. solution of the drug has caused rapid destruction of the cornea.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, 1915, ii, pp. 542 and 827. [2] *Berl. klin. Woch.*, 1911, p. 1560. [3] *Ibid.*, 1912, p. 664. [4] Quoted in Epitome of Current Medical Literature, BRITISH MEDICAL JOURNAL, December 18th, 1915, p. 52.

SOME NOTES FROM THE BATTLE FRONT IN NORTHERN FRANCE.

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My experience has been gained in the military hospital established and maintained under ideal conditions by Lady Eva Wemyss near Soissons, and by frequent visits to the great receiving hospitals at Compiègne under Ligusard, Carrel, and Mencière. These hospitals were only a few miles behind the firing line.

In such a hospital as that of Lady Wemyss the conditions for the rapid healing of wounds were unusually favourable. The three most important elements of success in treating wounds we had there in abundance—sunlight, fresh air, and pure water—and we made use of them all to the fullest extent. Every bed in the hospital was carried out of doors at 10 a.m., and the patients remained out until sundown. The heavy dressings were removed, and only a light layer of gauze put over the wounds to keep out dust but to let the light in. Even the operating was practically out of doors, to the great advantage not only of the patients, but also of the surgeons and nurses. The bathhouse was outside of the hospital, so that the wounded entered the wards clean in body and clothing. They were induced to drink water by every possible means, generally in the form of Imperial Drink, made with a teaspoonful of cream of tartar and the juice of one lemon to the quart of boiling water, and sweetened with sugar or saccharine to taste. Many were suffering from rheumatism, arthritis, neuritis, and cystitis, and these were all given fifteen grains of potassium bicarbonate in a tumbler of lemonade; this makes a pleasant effervescing drink, containing citrate of potash. Sometimes they took their water at every meal, flavoured with red wine, and at other times they had an abundance of beef-tea. When they had lost a great deal of blood and were unable to drink enough to replace it quickly, they were given large quantities of beef-tea by the rectum by slow continuous absorption, the reservoir being a douche bag lying at the foot of the bed, raised on blocks, so that the supply was only a few inches higher than the rectum. When thus introduced without pressure the rectum does not so easily rebel, but will, on the contrary, drink up enormous quantities of liquid. As every patient had received antitetanus injections, we did not have a single case nor did we have one of typhoid. There were no deaths and no amputations of limbs. We had several very high temperatures, which caused me a great deal of anxiety until, at Sir Joseph Godfrey's suggestion, I gave 10-grain doses of quinine. One case turned out to be tertian and another quartan ague.

In the morning we were awakened by the roaring of the guns, and soon after the wounded men began to arrive at the base hospital, already having had their wounds swabbed with 2 per cent. iodine at the field dressing station. Those who had fractures were put up in temporary splints, and then some thirty ambulances arrived from the subsidiary hospitals, so that by noon there was hardly a surgical case left. Carrel took many of the badly infected cases, or rather those in whom there was every probability of suppuration occurring. Mencière, the orthopaedic surgeon of Rheims, and chief of the Compassion Hospital, was allotted the bad cases of joint injury by shrapnel and bullet, requiring great operative skill or his "embalming" treatment. To the Lady Wemyss Hospital were allotted the compound comminuted fractures and many of the wounds and burns caused by shrapnel bursting at close quarters. By two o'clock the patients had been bathed, *x*-rayed, and in the operating-room. The *x*-ray machine was run by storage batteries charged by a small gasoline engine. The *x*-ray plates were held up before the operator, and each piece easily seen and removed. In many cases the fragment of shell was nearly a foot

away from the wound of entrance, so that in most of the cases a fresh incision was made over the spot where the bullet was located, and the long track through which it had travelled was cleaned, drained, and allowed to heal, which it quickly did. Most of the shrapnel wounds having been made from above downwards while the men were standing in the trenches, the shells exploding in the air, the fragments of steel were all situated much below the wound of entrance. To probe for the foreign body with a director in order to remove it with long forceps would be a mistake, for there would almost surely follow a collection of pus, since there is a little cavity containing small particles of clothing or mud. By making the opening at the most dependent part we can get the fragments out and flush the track and cavity with 1 in 4 hydrogen peroxide. In a few days the wound of entrance and the track will have completely healed, and the new wound, especially if it has been packed with iodoform gauze for the first day or two, will also have closed. Many of the patients went back to duty in ten days or less.

Many of the wounds were in the scalp, face, and neck, and it was evident that a light nickel steel helmet would have saved thousands of men from leaving the trenches. We called the attention of our Surgeon-General to the great number of scalp wounds, and soon after light steel helmets were provided in large numbers for the French soldiers, with truly remarkable results. While many were stunned, the helmets saved them from fractures of the skull and severe lacerations of the scalp, which would have kept them from the trenches for weeks or months. If the bullet had gone through the arm or leg, or muscles of the chest, shoulder, or buttock, a drainage tube with many windows was of the greatest advantage—first, by preventing the wound in the skin from healing too soon; and secondly, by preventing the pus from being absorbed. It is well to remember that even a teaspoonful of pus pent up without drainage or blocked by gauze packing may imperil a soldier's life; while ten times as much pus well drained will not even cause a rise of temperature.

Conservative Surgery.

No effort is too great nor time too long in order to save limbs as long as there is any life in them. A great many, even the great majority, of the badly damaged limbs may be saved, and eventually become very useful, without risking the patient's life. The collateral circulation of the leg can be well developed in a few hours after the femoral has been cut across. The limb should be kept warm, so as to dilate the arteries and capillaries. Also by elevating the bed at an angle of 45 degrees the venous blood will run back to the heart by gravity, and thus make it so much easier for the fresh hot liquid to keep the injured tissues from gangrene. With antiseptic surgery and antitoxins, patient but ever watchful waiting has taken the place of operative daring, but watchfulness is required to steer the patient through the surgical dangers. With a finger on the pulse and an eye upon the quantity of pus, and the effect of the loss upon the patient's face, we must be ready at a moment's notice to adopt Mencière's method, or the more dangerous method of amputation, leaving him in the one case with his own leg, and in the other with a wooden one. Every dressing should be weighed before and after its application to ascertain how much fluid the patient has lost (minus the amount evaporated). Pus consists of the great army of dead phagocytes killed by the microbes. It costs much blood to provide these phagocytes, and there is a limit to the number that the patient can furnish. So we supply him with at least iron phosphates and albumin to make up for what he is losing by his dead cells. A better way to estimate his loss is by a tube 2 ft. long; its upper end, with many windows, is placed for the whole length of the pus producing area and the other end in a white glass wine bottle attached by a wire around its neck to the frame of the bed underneath. If the wound be sealed hermetically, all the pus must pass into the tube through the windows and into the bottle. But as this end is much longer than the end in the wound the weight of the pus dropping into the bottle siphons the tiny particles as they are formed in the miniature battlefield, instead of being left until they accumulate enough to overflow. Carrel connects every drainage tube by a hollow copper wire with a vacuum pump, and a column of mercury shows the degree of vacuum in every wound; 6 in. or 8 in. of vacuum is enough. The effect of this method of drainage is that, first, the temperature drops to normal because the ptomaines given off by the microbes are removed *pari passu* instead of being absorbed—ptomaines give temperature. Secondly, the pulse drops to normal. Thirdly, the burning and discomfort of the skin disappears because there is no wet gauze soaked in acrid pus bathing it from one dressing to the next. Fourthly, the bills for dressings also drop. The pus goes into the bottle, which is weighed every twenty-four hours; the colour and consistence, as well as the weight, can thus be ascertained. If the dressing becomes wet, or the temperature goes up, the tube must be removed and cleaned. Otherwise there is no scientific reason for changing it every day. But the dressing of gauze paper is so cheap that we may change it every day; it can be sterilized the same as absorbent cotton. Another great advantage of the paper dressing is its lightness. A large package enough for a dressing only weighs an ounce and only costs a halfpenny. If my notes do no more than call attention to the wonderful absorbent paper, they will not have been written in vain.

Pus is full of phosphates and some iron, and a patient who is losing from 8 to 16 oz. a day cannot go on very long if these substances are not replaced. He becomes weak, develops neuralgic pains which demand morphine, and he dies from exhaustion, his heart growing weaker and weaker from want of food. The most digestible form of phosphates and iron are hypophosphites or glycerophosphates. The responsiveness of the cerebro-spinal system in many of the wounded, at least, has been weakened by nicotine. The bowels are stagnant, and the decomposing food gives out nauseous gases and poisons, and the stomach works feebly in digesting meat or casein. If an excessive tobacco smoker comes to us in civil life suffering from nicotine poisoning we give him comparatively large doses of nux vomica, with remarkable results. If a wounded man who is poisoned even to blindness, of whom I have seen several, comes under our care his wound will heal in half the time if we get the nicotine out of him and stimulate the paralyzed trophic nerves with strychnine and electricity. If his wounds are suppurating profusely give hypophosphites, and if he has sudden spurts of temperature give quinine. As to antiseptics, I have great confidence in potassium permanganate, but I have seen excellent results from hydrogen peroxide and also from carbolic acid. I have personally put potassium permanganate to the most severe test possible, only after my confidence in it was absolute. I have been called in consultation to cases of puerperal septicaemia in the pre-rubber glove days, and when I had to perform several abdominal sections on the same day. I blackened my hands and arms the colour of mahogany with a strong solution of permanganate and whitened them in solution of oxalic acid, and then in the ordinary boric solution and alcohol; the cases all recovered.

When I had a dangerous infection of my hand I asked the Professor of Surgery of McGill to cut through the swollen tissue under cocaine and to fill the yawning crater with dry powdered permanganate, which carbonized the microbes, gangrenous tissue, and phagocytes alike. This was at 10 p.m., and by next morning I was saved. Permanganate has the great advantage that it is not a poison if used externally. While in Paris the chief surgeon of one of the great French hospitals asked me what I would suggest in the case of a soldier with gas gangrene whose foot he had amputated; the wound had not united at all; it fell open as soon as the stitches were removed. The odour was sickening. I suggested putting the foot into a rubber bag filled with a strong solution of permanganate for twenty-four hours. From the first moment, I learnt, there had been no more odour and the man began to improve.

Recently I was in charge of a case of carbuncle of the neck which poured out enormous quantities of acrid pus which burned the surrounding skin and started a crop of subsidiary boils. The man was exhausted with pain and suppuration, and was going downhill rapidly. Under an anaesthetic I made a 2-inch cross incision and plunged my gloved finger into the cavity as far as the second joint. A hole for drainage was made at the most dependent part, and a wick inserted. Then a teaspoonful of finely powdered

permanganate was poured into the cavity, which had been thoroughly curetted to remove the pyogenic lining. The powder was pushed into every crevice with a piece of cotton on a forceps and with the finger, and some gangrenous skin and cellular tissue removed with scissors, and the wound was packed with a strip of gauze. It was left alone for a few days, during which the man rapidly improved, and when the wound was washed out there was a healthy pink granulating surface, but almost dry. At the end of ten days he was out and about.

Mencière's Method of Embalming.

One of the greatest pleasures of my stay in France was that of assisting Mencière at these operations at the Hôpital de la Compassion. I may describe one of the many cases I saw with him.

A young farmer from the south of France was shot through the ankle by a rough piece of cast steel shrapnel. Pieces of his shoe and sock were carried through and left there, although the steel went through. As he had been standing in the same wet and dirty socks for weeks in the trenches the wound was badly infected. The tibia, fibula, and scaphoid were shattered into many fragments, some living, but most of them dead. One collection of pus formed after another, and the poor fellow was so exhausted with pain and suppuration that he continually begged to have his leg removed. No sooner was one abscess opened and drained than another formed, so that at one time there were four drainage tubes traversing the joint at various angles. Mencière thought the leg might be saved, and the man was transferred to his hospital for operation. The operation was done very quickly under spinal anaesthesia. A tourniquet was applied around the thigh, so that it was bloodless. The antiseptic precautions were perfect. The operator made a 9-inch incision, which was held open by powerful retractors while he removed the suppurating fragments and curetted the cavity with a sharp spoon. With a cold chisel and mallet he cut away the ragged ends of the tibia, fibula, and tarsus. When he had finished there was a cavity which more than held 8 oz. Mackintosh was fastened to the edges of the skin, and the cavity after being thoroughly dried was filled with pure carbolic acid, which remained there one minute by the watch. This was removed with swabs of cotton, and then the cavity was irrigated with 5 to 7 pints of strong alcohol. Again the cavity was dried and then irrigated with the embalming fluid, consisting of alcohol, ether, iodoform, guaiacol, eucalyptol, and balsam of Peru. The ether acts as a vehicle to carry the antiseptic substances into every corner. After this a permanent dressing was applied, consisting of strips of gauze soaked in solution A, which is ten times stronger than solution B. This dressing is removed twice daily for seven days. The phenolized wound, which appears whitish directly after the carbolic acid is applied, becomes once more red under the influence of the lavage with alcohol. Next day the wound looks more or less blackened with the acid, but it is dry and clean and has lost the nauseous characteristic odour of gas gangrene.

Mencière claims that most antiseptics act only on the surface, while phenolization acts in the depths of the tissues where the *Bacillus perfringens* becomes harmful.

I can testify to the fact that Mencière saved many limbs by his method. It is easy to learn and carry out, although rather expensive on account of the large quantity of ether used. Whether we could not obtain equally good results by the deep disinfection of wounds by potassium permanganate, either in powder or in strong solution, I am not prepared to say.

Ulcers and Burns.

Great improvement in the healing of large ulcers or wounds of the feet and legs can be obtained by raising the foot of the bed on two chairs or blocks, so that the wound will be absolutely higher than the patient's nose. Zinc oxide ointment on oilcloth, not oilsilk, but cheap white table oilcloth, is the best treatment for extensive burns such as we had a great many of, due to the explosion of bombs a few feet distant. Some of the men had their trousers burnt off them. Boracic acid causes great pain and should never be employed, and Carron oil does well; but what is wanted is something thick enough to exclude air, alkaline in reaction, and oily. It must not be spread on lint unless put on very thickly and backed up by oilcloth or jaconet. As lard becomes rancid and intensely acid, it should never be used for ointments; vaseline is cheaper, keeps for ever, and is always bland. I gave all these cases an anodyne the moment they entered the ward, and thus saved them much of the shock generally seen. When these large destructions of dermis occur near a joint it is important to resort to skin grafting on a large scale to avoid cicatricial contraction. Many joints were kept efficient by keeping a weight on until the grafted skin had replaced the destroyed tissue. I removed strips of skin 4 in. long from the outside of the thighs under an anaesthetic, and stitched them across the centre of the large areas under great aseptic precautions, and on removing the dressing a week later was gratified to see that they were firmly adherent. From each of these strips the skinning over process proceeded rapidly, and in another week the weight was taken off, and there was no tendency to retract. I saw some cases where a good man was lost to the service by retraction of his legs, from burns behind the knees, without weights or skin grafting being used. But they did not occur at Lady Wemyss Hospital.

Heart Surgery.

The most striking experience of my stay in France was while visiting the Hôpital du Panthéon, where I witnessed the removal of a bullet from the pericardium behind the heart by Dr. d'Ardennois. In fifteen minutes the skin and muscle over the heart had been incised and lifted up; the ribs nipped through and lifted up on their joint with the sternum; the heart lifted out of the pericardium, all the time throbbing so strongly as to knock the operator's hand away when he tried to catch it; the bullet found, caught, and wriggled out of its bed; the heart put back, ribs sewed together, muscles readjusted, and skin closed carefully. A lady doctor, herself a doctor's wife, assisted, and the accuracy of the *x*-ray picture in front and profile showed where the bullet was to a nicety.

As a rule we received our cases the same day that they were wounded. But this was not always the case; sometimes, for various reasons, we did not receive them for a week. Many of these were deep, clean cuts, gaping widely, granulating, and bathed with pus. In these cases it was our invariable rule to thoroughly cleanse them with hydrogen peroxide, which cleanses without harming the granulations, and then to pass a silkworm-gut stitch far back from the edge of the wound and a quarter of an inch under it, and so to embrace the whole raw surface in a series of deep loops. When these were tied, the granulating surfaces were brought firmly together. No bad results followed. There was a little suppuration without temperature, because we drained with a few strands of silkworm-gut at the bottom. The country was saved at least two weeks' loss of each man so treated, for in a few days, or a week at most, the wound was healed, instead of taking a month to fill in with granulations.

FAECAL AND INTESTINAL VOMITING AND JEJUNOSTOMY.

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The obstruction was released, but the vomiting never stopped, and the patient died twenty-four hours later.—*Case Report, any Hospital.*

The abdominal distension continued to increase, the patient vomited large quantities of brownish fluid, and the pulse became uncountable.—*Another Case Report, any Hospital.*

In November, 1910, a paper of mine appeared in the *Archives of the Middlesex Hospital* (vol. xxi), entitled "Post-operative paralytic obstruction of the intestine, with special reference to its treatment by jejunostomy." Therein I pointed out that the fatal result in these cases was due to toxic absorption from the upper intestinal tract brought about by an acute ascending infection by *B. coli communis* and other organisms of the lower intestine in a state of exalted virulence and activity.

I further pointed out that in these cases the bowel may be divided into three segments, each of which is in a different condition: (1) A collapsed portion, (2) a portion above it much distended with gas, but containing no fluid matter, and (3) a portion above that distended with gas and fluid matter, the fluid being more or less faeculent in character and identical with that vomited.

I showed that in these cases it was proper to open the upper fluid-containing segment in order to drain the

reservoir of toxicity, and useless to open the middle gas-containing segment.

During the time that has since elapsed my confidence in the correctness of the views then expressed has been strengthened, and I hold strongly that in all cases of paralytic intestinal obstruction (whether primary, or secondary to an organic obstruction or to peritonitis), when advanced to the stage of faecal, or short of faecal, intestinal vomiting, should be treated by jejunostomy.

The Character of the Vomit as Indicating the Condition of the Upper Intestinal Tract.

The character of the vomited matter indicates the condition of the upper part of the intestinal tract, for where the vomit is faecal or intestinal the stomach forms the highest part of the fluid-containing segment. This upper segment does not necessarily reach as high in every case of intestinal obstruction when it first comes under clinical observation, nor need it at first include any part of the small intestine; for if the primary obstruction is situated low down in the large intestine, the total area of distension may not at first extend above the ileo-caecal valve. In such the "segment of toxicity" will comprise the caecum and descending colon. In this phase, however, the vomit is neither faecal nor intestinal, but simply the stomach contents.

In all cases of obstruction, however, the stomach and jejunum will eventually be included in the fluid-containing segment, and so soon as this occurs the fact is made patent by the change in the character of the vomit, which at first becomes intestinal and finally faecal.

This upward extension of the limits of the fluid-containing segment is due to a rapid upwardly extending infection of the canal by organisms of the lower intestine.

The effect of an infection by faecal bacteria on the contents of the small intestine is well illustrated by the following case:

A soldier was sent to the military branch of the Middlesex Hospital at Clacton-on-Sea. He had been kicked by a horse and intestine had been ruptured. Immediate laparotomy was performed, and the bowel anastomosed by means of a Murphy's button. When the man went to Clacton, four weeks afterwards, the button was still *in situ*, and could be well seen with the *x* rays. The abdominal wound presented a fistula from which typical faecal matter, characteristic in odour and non-irritating to the skin, exuded. Two weeks later, the button not having passed and the man being very ill with signs of intraperitoneal suppuration, I operated.

I found to my surprise that the faecal fistula led down to a coil of small intestine some 3 ft. above the point where the button was lodged, which itself was some 3 ft. or more from the ileo-caecal junction. The button was half in and half outside the bowel, the wall of which at the point was in a state of necrosis, and surrounded by a large pelvic abscess. I excised two portions of the gut and performed a double anastomosis, and the man made a fortunate recovery.

The interest of the case from the point of view of this paper is that the presence of the necrotic area in the vicinity of the button had induced an ascending infection, which extended at least 3 ft. above it, and which converted the odourless ichorous contents of the ileum into a stercoraceous, non-ichorous material, identical with that normally found in the large intestine.

This conversion by bacterial agency of the normal contents of the small intestine into a highly toxic fluid is the essential factor in the production of the symptoms of acute intestinal obstruction. The presence of the toxic substances in the bowel excites the mucosa to exude a copious watery secretion which, mingling with the infected fluid already there, itself undergoes corruption. Thus the upper intestinal tract becomes converted into a great toxic reservoir.

The death of the patient is due to the absorption of this toxic material, and the vomiting is Nature's desperate attempt to rid the organism of the poison.

It is here that surgery should step in and drain the reservoir.

The drainage opening must tap the fluid-containing segment. It is useless to open the segment that lies below it; nothing escapes, and I have on several occasions seen a patient die with great distension and vomiting faecal matter to the last, whilst through a free opening into the caecum or ileum not a drop of fluid, not even a puff of gas came!

On the Place of Caecostomy.

Caecostomy is a most effective operation in those cases in which the caecum and ascending colon form the fluid-containing segment; but it is not indicated when the vomit is faecal or copiously intestinal—that is, when the "segment of toxicity" includes the upper intestinal tract.

Jejunostomy.

By making an opening into the jejunum in a case of faecal or intestinal vomiting the source of the vomit is directly tapped and free drainage of the toxic material is established.

No patient should be allowed to die with faecal vomiting if it is possible to perform this operation. Its effect in my cases has been remarkable; in all of them there has been immediate cessation of the vomiting, and all the patients have recovered.

It is true that after jejunostomy a second operation to close the opening has to be faced, but this is not such a serious undertaking as might at first be thought.

Mr. Sampson Handley, in his paper recently published in this JOURNAL,[1] refers to my original paper on the subject, but doubts whether jejunostomy would be successful in cases of post-operative intestinal paralysis. The cases I am now able to report show that it is most successful. Its object is *drainage*, to which all else for the moment must be subservient. There is no fear that jejunostomy will starve the patient of water. Once the vomiting is stopped, the stomach alone is quite capable of absorbing all the water required, and more can be given by the rectum or under the skin.

Mr. Handley suggests instead short-circuiting the jejunum to the transverse colon and then performing caecostomy. Inasmuch as he opens the jejunum, he does actually perform a jejunostomy, the difference from my procedure being that the jejunum drains through a segment of the colon instead of directly through the abdominal wall.

Which of these two channels of drainage will prove to be the best, experience alone can show. Certainly jejunostomy is the shorter and easier operation, and, in view of the septic condition of the bowel, I opine the safer.

TECHNIQUE OF THE OPERATIONS.

The First Operation.

The abdominal incision should be separate from that made to relieve the obstruction. The latter will usually be in the mid-line below the umbilicus. It may have been primarily made there on account of the obstruction or have been made through the scar of the recent operation that preceded the obstructive symptoms. By making a separate incision for the jejunostomy the healing by first intention of the far larger wound below it will not be jeopardized. An opening about 2 in. long, directly above the umbilicus, having been made, the *highest obtainable coil of jejunum* is pulled up. In most cases the coil immediately below the duodeno-jejunal junction may be deliberately selected; but if there be great distension this may be impossible, and the surgeon must then take at random one of the coils lying in the left hypochondrium. The intestine is fixed in the wound by two stout sutures passed through the skin, then through the thickness of the bowel wall, and then out through the skin again at either end of the wound. The intestine is now opened by a small longitudinal incision, the edges of which on either side are sutured to the skin edges of the abdominal wound with a few stout sutures.

On opening the bowel a quantity of gas escapes, and there may be at once a gush of faeculent fluid, but sometimes the latter does not begin to pour out till a little time has elapsed.

Though the fluid must be highly infective, it does not seem to affect the wound to a marked degree, neither does it interfere with the healing of the second wound if such be present.

It might also be supposed, in view of the loose suturing of the intestine to the edges of the wound, that there would be considerable danger of infection spreading to the peritoneum, but in not one of my cases has this occurred.

Subsequent Progress.

During the next twenty-four hours a copious discharge takes place identical with the fluid the patient was vomiting before the operation. After this, as the intestine clears itself, the discharge becomes thinner and odourless, and increasingly bile-stained until it consists of the normal jejunal contents. At the end of a week, or sooner, undigested food particles appear, and the skin in the vicinity of the opening becomes very red and excoriated. The patient rapidly wastes, and it is now time to consider the closure of the opening.

During this period the treatment should be as follows: For the first forty-eight hours nothing but water should be given by the mouth, to which brandy or whisky may be added as required. The amount of water given should not be stinted. After this the patient should be given easily absorbable meat essences and extracts, freely and at short intervals. It is no use giving food substances which require jejunal digestion, like milk, for instance, which is merely passed in clots out of the jejunal opening. Rectal saline infusions with glucose added should also be given every four or six hours. If the patient's condition is very bad continuous infusion of saline solution into the thighs is the best of all restoratives. Brandy may be added in the proportion of 1 oz. to a quart. For the discharge frequent changing of the dressings is required, and the skin should be protected by smearing it with a thick mixture of castor oil and oxide of zinc.

The Second Operation.

At the end of a week or ten days closure of the jejunal opening has to be undertaken. As by this time the skin is very red and excoriated around the opening, the preparation of the operation area should be limited to the application of iodine solution on the table. It is no use attempting a paring operation, the whole opening must be removed, the bowel sutured end to end, and the abdominal wound separately closed. The skin incision should begin 1½ in. above the opening, and continue downwards until the opening is nearly reached. It should then bifurcate to surround the opening ½ in. outside the muco-cutaneous junction and unite again below it. The peritoneal cavity should now be opened *above* the adherent bowel, and a finger inserted to make out the limit of its deep attachment. Guided by this finger the bowel is entirely freed, bringing away with it that part of the abdominal wall included in the oval area demarcated by the skin incision. The freed coil having been brought up, a clamp is applied to the intestine on each side of the opening, and about two inches from it, so as prevent the escape of the contents. Sterile towels are now packed round the coil so as to exclude the wound edges and the peritoneum and the previously attached portion is cut away down to the mesenteric attachment. An end-to-end anastomosis is then performed with three layers of sutures for extra security. The bowel is dropped back and the wound in the parietes closed with a single layer of stout sutures.

For the first forty-eight hours after the closure it is better to restrict the patients to water by the mouth, but this may be given freely. Afterwards, and up to the end of the first week, the diet should be limited to easily-absorbable meat extracts and essences.

Report of Cases.

I give below short details of six cases of jejunostomy, five of my own (all I have performed) and one of my colleague's, Mr. Bryden Glendining, which he has very kindly given me leave to publish.

CASE I.

Paralytic obstruction of the last 3 ft. of the ileum and of the caecum and ascending colon forty-eight hours after radical removal of carcinoma of the cervix. Faecal vomiting. Jejunostomy was performed with immediate relief. Jejunal opening closed about a week later. Recovery.

CASE II.

A case in which an ovarian dermoid was forced through the wall of the rectum above the floor of Douglas's pouch by the child's head during labour. Primary operation thirty-six hours later; general peritonitis. It being impossible to suture the bowel, the uterus and broad ligaments were sutured to the back of the pelvis, so as to exclude that cavity. Enormous distension and faecal vomiting. Jejunostomy performed two days later with immediate relief. Jejunal opening closed about a week later. Recovery.

CASE III.

General peritonitis due to a suppurating ovarian cyst. Cyst removed. Obstructive symptoms appeared with faecal vomiting. Jejunostomy with immediate relief. Jejunal opening closed some days later. Recovery.

CASE IV.

Operation for extrauterine gestation. Patient became distended. Mr. Handley in my absence reopened the wound. Patient greatly relieved for two days. Symptoms of acute obstruction then became manifest, with copious intestinal vomiting. I reopened the wound, and found enormous distension of the upper part of the small intestine. Jejunostomy with immediate relief. Jejunal opening closed a week later. Recovery.

CASE V.

Patient had been operated on for papilliferous ovarian cyst two years before. Admitted for intestinal obstruction and faecal vomiting. Scar reopened; many adhesions and great distension found. Jejunostomy with immediate relief. Jejunal opening closed a week later. Recovery.

CASE VI (Mr. Glendining).

Operation for suppurative disease of the uterine appendages. Seventeen days later wound reopened for further collections of pus in the pelvis. Abdominal distension increased, with faecal vomiting and signs of obstruction. Five days later jejunostomy. Stomach washed out and 1 pint of liquid paraffin poured into the bowel. Six days later excision of piece of jejunum and anastomosis. Recovery.

REFERENCE.

1 BRITISH MEDICAL JOURNAL, April 8th, 1916.

A CASE OF MARKED TEMPORARY APHASIA AFTER LIGATURE OF THE COMMON CAROTID ARTERY FOR TRAUMATIC ANEURYSM.

BY FRANK COLE MADDEN, M.D.MELB., F.R.C.S.ENG.,

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DURING the year 1915 we treated upwards of 5,000 sick and wounded soldiers—British, Australian, and Turkish—in Kasr-el-Ainy; but with all the chances of damage in many cases of bullet wounds we had only one case of obvious penetration of the large vessels of the neck.

This case, which unfortunately ended fatally, reached us many days after the infliction of the wound, and was that of a British soldier with a bullet which had passed through the upper jaw on the right side, then through the soft palate and side of the pharynx and on down the neck in front of the sterno-mastoid. An *x*-ray photograph showed the bullet lying in front of the body of the sixth cervical vertebra rather to the right side. A well-marked pulsating swelling was present over the carotid artery, on which we proposed operating when the general condition had improved. Our hands were forced, however, owing to the occurrence of repeated disquieting secondary haemorrhages from the wound in the pharynx. On the advice and with the kind assistance of the late Colonel Stonham, consulting surgeon to the forces, I cut down in the neck and found a very extensive slitting of the internal jugular vein, pouring blood into a very thin-walled pouch, only very imperfectly delimited from the surrounding tissues. There was no injury to the arteries of the neck. Though we were able to secure the divided ends of the vein, the shock and haemorrhage at the operation were too great to be borne by an already very enfeebled patient, and he died shortly after the operation.

It remained for our civil patients, who were once again admitted to the hospital after the stress of wounded had passed, to furnish us with a much more perfect case of combined injury to artery and vein in the neck, which, for several reasons, is worth placing on record.

History and Condition on Admission.

He was a young Egyptian carpenter, aged 23, named Mustapha Aly, admitted on February 15th, 1916. He stated that he had been stabbed in the left side of the neck with a chisel three days before. At the time there had been considerable haemorrhage, which had soon stopped. Very shortly after the blow he noticed a swelling at the site of the wound, which induced him to apply for advice. The external wound was situated over the middle of the left sterno-mastoid, and had almost quite healed, but a large pulsating swelling occupied the space

in front of the muscle, and extended well down the neck and towards the outer margin of the muscle. This had all the characters of an arterio-venous injury, and tended to increase slowly in size in all directions during the few days preceding operation. It appeared to be directly in connexion with the left common carotid artery, pressure on which completely stopped the expansile pulsation of the swelling and considerably reduced its size. Beyond the presence of the swelling and slight interference with the movements of the neck, the patient was not in any way bothered.

Operation.

At the operation, on February 26th, a free incision was made from the upper limits of the swelling along the anterior border of the sterno-mastoid nearly down to the sterno-clavicular articulation. After reflecting the skin, dissection disclosed that the main mass of the pulsating tumour occupied the substance of the left sterno-mastoid muscle, and was exceedingly thin-walled in its upper and outer part. By retracting the muscle backwards it was found that the common carotid formed a kind of neck to the sac, and the internal jugular vein passed straight into it. While attempting to clear the neck of the sac from below it gave way and some haemorrhage occurred, which was immediately controlled by pressure on the artery lower down. The common carotid and the internal jugular vein were then ligatured well below the lower limits of the sac, and the difficult part of the operation appeared to be over, Then the sac burst, and we saw that there was a considerable length of the internal jugular vein split inside it. Haemorrhage was free, and only partially stopped by pressure; and it was not till, after considerable tedious dissection, we had ligatured the internal jugular vein and a large posterior tributary and the external carotid artery above that all bleeding ceased. The sac was then opened up and cleared, and it was seen to be confined to the body of the muscle. Beyond the limits of the muscle there was no definite sac, and it is remarkable that a more extensive and diffuse extravasation of blood had not taken place. The operation took nearly two hours, and the patient, who had been given intravenous saline injection on the table, had a fairly good pulse, and under appropriate treatment soon rallied.

After-History.

But he lay in a dull, heavy, stupid condition for twenty-four hours. After that he gradually seemed to understand what was said to him, but was quite unable to put any of his thoughts into words for several days. His pupils were equal, as were his radial pulses; he swallowed well and, though quite aphasic, was able to make certain grunting noises, which reassured us as to the integrity of his recurrent laryngeal nerve. For two or three days there was a definite paresis of the right side, and the grip of the right hand was appreciably weaker than the left. Rectal and bladder functions were not interfered with in any way after the first twenty-four hours.

The peripheral symptoms very soon passed off, and in ten days' time no difference in the power of the limbs could be distinguished. The mental dullness rapidly improved, but recovery from the aphasia was a much more gradual process. About fourteen days after operation, much to his delight and to our satisfaction, he greeted me by articulating quite distinctly, after one or two false starts, "My name is Mustapha" (in Arabic), and two days later he wished me "Good-morning," without any preliminary bungling. Very gradually his re-education has proceeded, until now, four weeks after operation, he is sufficiently recovered to be able to tell us where he lives and to ask to be discharged.

His wound healed perfectly, and there is only a small hard lump in the muscle. In the left side of the neck no dilatation of veins can be seen, and there is no pulsation to be felt either along the course of the carotid or over the facial or temporal arteries. The radial pulses are the same on both sides.

Every day his aphasia is less, and it is very interesting to note his distress and annoyance at not being able to put his ideas into words, especially now that his mental condition is so thoroughly re-established and his ideas flow so much more readily. So rapid has been his progress in the last few days that I am hopeful he will eventually completely recover without any physical or mental defect.

NOTES ON A FATAL CASE OF ACUTE NEPHRITIS OCCURRING IN THE EXPEDITIONARY FORCE.

By RICHARD C. CLARKE, Capt. R.A.M.C.(T.F.),
ASSISTANT PHYSICIAN TO THE BRISTOL ROYAL INFIRMARY.

My reason for publishing these notes on this single and rather incomplete case of nephritis is that I think it of peculiar interest; it gives me at any rate food for thought, and may help to elucidate the problems of this disease. Also, although I am, I admit, out of touch with the literature, I understand that very few complete *post-mortem* examinations on early cases of nephritis occurring in our forces in the field have been made.

Driver L., A.S.C., attached to a field ambulance, was admitted into the clearing station on February 17th, 1916. On January 30th his urine was examined, in course of a routine examination of his unit by Captain McLeod of a mobile laboratory, and found to be normal. On February 7th he reported sick, and two days after he was admitted into the field ambulance with follicular tonsillitis. The temperature never exceeded 101° F. In two days the fever subsided and the throat cleared up. At this stage a moderate amount of albuminuria was present, but no oedema. For the next three days the temperature kept down, and the only thing which prevented his being returned to duty was the presence of complete anorexia and some vomiting.

On the fifth day in hospital his face was noticed to be puffy, and there was a large amount of albumin in the urine. The next evening the temperature ran up to 102.6° F., and in the morning he was evacuated to the casualty clearing station. He arrived with the convoy at about 2 p.m., and I examined him at 3 p.m. He looked very pale and ill and complained of headache and weakness. There was no marked oedema of the face, though there was some swelling of the ankles and a well-marked lumbar pad. The temperature was 100.5° F., and the tongue furred, brown, and extremely dry. The pulse was 100 and of fair quality. Except that the heart sounds were rapid and slightly feeble and that there were rhonchi at the bases, the examination of the chest was negative. The abdomen was somewhat tumid, and there were signs of moderate ascites. The liver dullness was higher than normal behind, and the edge was felt in front below the costal margin. The spleen was not felt. Examination of the central nervous system elicited nothing unusual. The fundus was not examined. His general condition, though serious, did not lead me to suppose then that he would die. The urine was fairly profuse, pale, and clear. On boiling it was solid with albumin. On spinning the sediment showed hyaline casts, often with polymorphonuclears attached and free polymorphs. There were no epithelial casts, and nothing suggestive of the presence of epithelial cells.

I saw him again in the evening and found him no worse. Towards the morning he had diarrhoea and abdominal pain, and at 8.30 a.m. suddenly collapsed. I saw him shortly after, and found him cold and pulseless, but quite conscious and complaining of abdominal pain. He died an hour later, perfectly conscious to the last; in fact, he dictated a letter home some ten minutes before he died.

Necropsy.

I performed a *post-mortem* examination two hours after death, with Captain McLeod and Dr. Amecielle of the French medical service.

There was no abnormal pericardial fluid. The heart was small and the walls of the left ventricle distinctly thickened. The valves and aorta were normal. There was oedema of the bases of the lungs. The peritoneal cavity contained about 2 pints of opalescent fluid. The intestines were normal.

The liver was somewhat enlarged and fatty. The spleen was enlarged slightly, flabby; no necrotic patches. The kidneys were large, firm, and congested. There was much swelling of the cortex and pyramids, the latter standing out very clearly. The capsule stripped easily. The bladder was normal, as was the pancreas. The suprarenals showed some medullary hypertrophy and medullary haemorrhages. The meninges were slightly injected and the brain a little oedematous.

Blood taken from the vena cava contained 1.80 grams of urea per litre. A blood film taken just before death showed a high polymorphonuclear leucocytosis, estimated at about 40,000.

Bacteriological Data.—The peritoneal fluid yielded on spinning a sediment of leucocytes, mostly polymorphonuclear, amongst which were very numerous streptococcal chains of medium length. No organisms were found in smear preparations of the kidney or spleen pulp, but polymorphonuclear leucocytes were very numerous in the smears from the spleen. A growth of streptococci was obtained both from the kidney and the spleen. The organism had moderate haemolytic power; 5 c.cm. of a thirty-six-hour culture in horse serum bouillon, when injected subcutaneously into a rabbit, did not cause the death of the animal. A control injection into a similar rabbit of a streptococcus taken originally from a wounded French soldier in subculture for five or six months killed the animal. The only other organism isolated from the viscera was a coliform bacillus, which, as it grew from only one of several preparations of the kidney, can, I think, be disregarded as a *post-mortem* examination.

Microscopic sections of the organs showed that in the kidney the main brunt of the attack had fallen on the interstitial tissue. The glomeruli had escaped entirely and most of the tubules. In the interstitial tissue were several areas of acute congestion. In these were foci of polymorphonuclear and large mononuclear renocytes, forming microscopical abscesses. The tubules running through these areas showed some degeneration, but no desquamation of the cells. Moreover diapedesis of polymorphonuclear cells was seen taking place through the basement membrane, and some were seen in the lumen of the tubules. Globules of fat were seen in many of the liver cells. There were a few areas of cellular necrosis in the cortex of the suprarenal. The medulla showed haemorrhages and collections of polymorphonuclear leucocytes, and there was distinct medullary hyperplasia. Lungs showed some foci of congestion and oedema. The spleen was congested with an undue amount of leucocytes. The heart and pancreas were normal.

The actual cause of death in this case was, I think, septicaemia in a patient whose resistance was lowered by a certain amount of uraemia. The slight uraemic symptoms, namely, headache and anorexia, the mode of death:

and terminal peritonitis all point to this. The case, however, presents many problems of interest. It started with tonsillitis probably of streptococcal origin, and at that time there was no albuminuria. The question arises, then, Did the tonsillitis pass on to a septicaemia, and cause a streptococcal interstitial nephritis, or did the toxin circulating in the blood from the focus in the throat cause the kidney trouble, leading to a general lowering of resistance, which allowed the streptococcus to get a footing in the general circulation? In other words, was this nephritis of pyaemic or toxic origin?

Personally I am inclined to the former view. I admit that no organism was demonstrable in the sections, and the fact of its growing from the kidney pulp can be explained by a general blood infection. I support my case entirely on the microscopical abscesses in the interstitial tissue of the kidney, and on the clinical course of the case.

My thanks are due to Captain McLeod, R.A.M.C., who did the bacteriological work, and to Dr. Amecielle, of the French medical service, who got the tissues sectioned for me, and gave me his valuable opinion on them.

INJURY TO THE INTERNAL EAR PRESENTING SOME UNUSUAL FEATURES.

BY

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SOLDAT D. was admitted on December 29th, 1915, with a bullet wound of the head.

Entrance wound left frontal eminence. No exit wound. Skiagrams (1) on admission, showed no bullet, but only splintered bone below the wound; (2) on February 2nd, showed no bullet, but a rarefied area, where at operation the bone spicules had been removed.

Treatment.—On admission the patient was anaesthetized and trephined. Fragments of bone were removed from the frontal lobe of the brain and the wound dressed with gauze. There was nothing to suggest a fractured base. There were no signs of focal injury nor of intracranial pressure. As regards his head wound, the patient made an uninterrupted recovery.

Evidence of cerebral irritation (sulkiness, mischievousness, resentment of any one approaching him) persisted for some days, and disappeared with the sudden onset, on January 8th, of escape from the left ear of fluid, which flowed slowly but steadily, was quite clear, and reduced Fehling's solution. With the flow of cerebro-spinal fluid all signs of cerebral irritation ceased. The flow persisted until January 24th.

Otoscopy.—The right ear was normal. In the left ear, half an inch from the external meatus, a sessile swelling of the bony roof bulged downwards, occluding three-quarters of the meatal lumen and preventing inspection of the membrane. It was covered with intact skin, sensitive and stony hard to the probe, and resembled a meatal exostosis. It was impossible to be certain that it was the result of the injury. This appearance persisted unchanged as long as the patient was in hospital, so that the membrana tympani was never seen.

Hearing was at first good, and equal on both sides to watch, speech, and whisper; no tuning-fork was then available. The hearing on the right remained normal, while on the left it became progressively worse. On January 26th he heard speech left 18′, whisper 4″; on February 6th, speech 2′, whisper ½″. On February 24th I obtained a tuning-fork (D.V. 512); Weber to right; absolute bone-conduction on left—15 secs. On and after March 5th, for speech, watch, and tuning-fork, both air and bone conduction were *nil* on the left side.

Equilibrium.—As soon as the patient was well enough to be lifted into a sitting position he fell over on to his left side. In a few days he could sit up without support, and walk unsteadily by January 15th. After January 26th he could walk straight with his eyes open; but with eyes shut staggered to the left. He next developed a crab-like gait (with eyes shut), diverging constantly to the left, and crossing the right foot over the left as he walked, to avoid falling to the left. On and after March 5th his gait was normal, with eyes opened or closed.

Evidence as to Cerebellar or Meningeal Lesion.—There was never any asthenia, dysdiadokokinesis, giddiness, vomiting, or nausea. There was no indication for lumbar puncture or examination of optic discs.

Nystagmus.—No galvanic apparatus or rotation-chair was available. Repeated observations were made, with the head in various positions and water at different temperatures; and the ears were irrigated both separately and simultaneously. The mean results obtained were as follows:

Spontaneous Nystagmus.—On deviation to right: Fine, pure horizontal, never of more than first degree. This became progressively less marked, and no nystagmus was obtainable after February 17th. On deviation to left: No nystagmus.

Caloric Response.—Head backwards 60 degrees; water at 90° F. run in for two minutes. Right: During the persistence of spontaneous nystagmus on deviation this was always made coarser and raised to third degree. After spontaneous nystagmus had ceased (February 17th), irrigation elicited a similar but less violent normal response. Left: On deviation to this side there was never any response to irrigation. But, for as long as the spontaneous nystagmus to the right persisted, this could always be inhibited for periods varying from two to fifteen minutes by warm irrigation of the left ear.

To test this inhibitory effect of stimulating the left labyrinth on nystagmus to the right, the two ears were simultaneously irrigated several times after February 17th, when spontaneous nystagmus to the right had ceased. But at no time did the irrigation of the left ear have any effect on the nature or duration of the nystagmus obtained by simultaneous irrigation of the right ear.

On his discharge to the base, after ten weeks in hospital, he had on the right side normal caloric labyrinthine response and normal hearing. On the left side, total loss of labyrinthine response and complete deafness. Gait and general health normal.

The signs of cerebral irritation during the early days disappeared suddenly and permanently with the appearance of cerebro-spinal otorrhoea, which again ended spontaneously sixteen days later. Although there had been no classical signs of compression, it seems reasonable to suppose that the irritative stage might have merged into such, and that the cerebro-spinal flow was nature's decompression. The gradual loss of spontaneous nystagmus to the sound side and of a tendency to fall to the injured side, were merely evidence of recovery from partial or complete unilateral loss of labyrinthine function. Since stimulation of the left labyrinth always inhibited any spontaneous nystagmus to the right, but later on failed to inhibit caloric nystagmus to the right, and since also there was a progressive loss of hearing, there was obviously a progressive lesion of cochlear and vestibular apparatus.

The results of caloric tests on the left ear seem puzzling. Whether the lesion was in any part of the left external semicircular canal or in the nervous mechanism proximal to this, it was striking that stimulation should inhibit nystagmus to the right, but never succeed in eliciting nystagmus to the left.

The bullet was never removed from the skull, nor seen in a skiagram. It may never have entered, although the shape of the wound suggested penetration rather than glancing. If it is still in the patient's head, that would not seem to account for the findings here reported.

THE TREATMENT OF DIABETES.

BY

JOHN HUME, M.D., D.P.H.,

PERTH.

THE cause of diabetes is looked upon as the result of the faulty action of certain glands, which action appears to result from, or be aggravated by, absorption of toxic products produced in the alimentary tract.

This statement appears to be borne out by the remarkable improvement which takes place in diabetics when the treatment is directed to controlling toxic production in the bowel. The beneficial effects of removing alimentary toxaemia is fully explained in an article on starvation and purgation by Dr. Guelpa of Paris.[1]

There is a variation each day in the amount of sugar in the urine of diabetics which takes place independently of treatment. In my opinion this is due to the condition of the bowel, as I have invariably found the sugar content of the urine high when the bowel was loaded; after it was cleared by aperients a reduction in the amount of sugar was apparent.

As the treatment of diabetes by means of a starch-free diet is very irksome to the patient, and often unsatisfactory, I have for several years treated my diabetic patients by fasting, and cleansing of the alimentary tract, at the same time allowing a diet from which starch was not entirely excluded.

As early as three days after commencing treatment, I have invariably found alleviation of the symptoms, the thirst much less, the craving for food not nearly so pronounced, the pruritus, if present, markedly relieved, and the patient all round much better than on a rigid starch-free diet and opium derivatives.

Mode of Treatment.

I thoroughly inspect the mouth, have any defective teeth removed, and enjoin the necessity of thoroughly cleansing the teeth and washing out the mouth frequently.

The fast I begin with is generally about fourteen hours' duration. The best time to commence is in the evening. I allow a light meal about 5 p.m. Two hours after I give a dose of castor oil. The patient can rinse out the mouth with warm water, if desired, two or three times during the fast, but on no consideration must anything be swallowed, not even water, as I find the results are not so satisfactory when water is allowed. At 9 next morning I give a second dose of castor oil and then no food for two hours. By 11 a.m. the bowels have, as a rule, acted, and I allow the patient to have breakfast. There is therefore a period of absolute fasting between the two medicines. In succeeding fasts salines can be used, the object being to secure a thorough evacuation and to reduce the intestinal flora as far as possible. The patient can easily go through the same routine every second night, and after he has become accustomed to t e treatment the duration of the fasts should be prolonged by beginning earlier in the afternoon and extending them next day. At the end of a fortnight a fast of twenty-four hours can easily be done two or three times a week.

It is better in the earlier fasts to keep the patients in bed, as I find they are more easily managed and it is pleasanter for themselves as they can more readily keep warm and do not have the same temptation to stop the fast as they would have if they were going about. In many cases the disappearance of the sugar is complete. I generally recommend, however, that there should be one fast of eighteen hours each week carried out in the same way.

If a small quantity of sugar persists I recommend two fasts each week of about fourteen hours, and find this quite sufficient to prevent the other symptoms of the disease from manifesting themselves and to allow the patient to attend to his duties.

The following four cases, selected at random from my notes, are typical of the results to be obtained:

1. Mrs. H., aged 56, thirst very marked, intense pruritus, specific gravity urine 1024, sugar 8 per cent. Had been under treatment previously to becoming my patient; at end of first week after commencing treatment the thirst was almost *nil*, there was great improvement in the pruritus, and the sugar was only 5 per cent. At end of first month 1 per cent. and no sugar present at end of six weeks.
This patient has an occasional fast and has been working regularly for three years now.
2. D. McF., aged 49, urine specific gravity 1026, sugar 9 per cent., thirst marked, and a considerable degree of mental disturbance. He had previously been under treatment for four months. In six weeks after commencing treatment he returned to his work. Fourteen months ago he went to America and occupies a good position. He does a fast of about eighteen hours once in ten days.
3. Mrs. J., aged 62. When I first saw her the fourth toe on the left foot was gangrenous. The specific gravity of the urine was 1035 and the sugar 11 per cent. Very great thirst and pruritus were present. The toe was removed and wound healed satisfactorily. At end of four weeks after commencing treatment only 2 per cent. of sugar remained, and at end of six weeks none was present. She does a fast of eighteen hours about every six days.
4. J. D. (male), aged 64, specific gravity urine 1028, sugar 8 per cent., and a trace of albumin was present. At end of six weeks no albumin and only a trace of sugar left. The patient felt much better and returned to work. He has kept well and does one fast of fourteen hours in the fortnight.

REFERENCE.
[1] BRITISH MEDICAL JOURNAL, October 8th, 1910, p. 1050.

THE British Fire Prevention Committee (8, Waterloo Place, S.W.) has issued a memorandum on the use of a mixture of sawdust and sodium bicarbonate for extinguishing small fires occasioned by the ignition of petrol and other inflammable liquids. The sawdust must be free from shavings and chips, but need not contain added moisture. When applied to the surface of the burning liquid it floats for some time, thus excluding the oxygen of the air and smothering the fire. The addition of sodium bicarbonate is advantageous, for the heat liberates a certain amount of carbon dioxide, which adheres to the sawdust, and slightly assists in extinguishing the fire. The proportion should be about 10 lb. of bicarbonate to one bushel (or, say, 12 lb.) of sawdust. The powder must be applied rapidly and systematically by a sweeping motion of a shovel, so as to cover the whole of the burning surface; the method, it is thought, will prove particularly useful in motor garages and hangars.

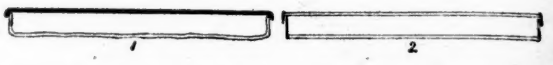
NEW FORMS OF PLATING DISHES FOR THE CULTIVATION OF BACTERIA.

BY S. DELÉPINE,
DIRECTOR OF THE PUBLIC HEALTH LABORATORY, MANCHESTER.

OWING to the difficulty of obtaining at the present time suitable dishes for making plate cultures I have adopted several devices.

1. The object of the first was to utilize the stock of Petri dishes which I had in the laboratory, which was insufficient when it became necessary to have some eight hundred dishes available daily in connexion with our military work alone.

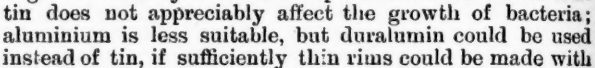
I had a number of shallow flat metal lids made to fit the tops and bottoms of the existing dishes, so that each Petri dish could be utilized to make two plates, thus doubling the stock available (Fig. 1). I found that these metal lids when well tinned answered their purpose. They, however, require frequent polishing in order to keep the surface smooth and free from rust.



1 One half of a Petri dish with a metal lid to replace the other half. The unevenness of the bottom of the Petri dish is exaggerated.
2. A plating dish made by forcing a glass plate into a flexible metal rim.

2. I have also made plating dishes by inserting round pieces of plate glass in a thin rim of well tinned metal or waterproofed cardboard, etc. (Fig. 2). These plating dishes are very much cheaper than the old-fashioned Petri dishes, and appear to me to be better, because the glass bottom is perfectly flat and of equal thickness, and permits of the media being more evenly spread. They stand sterilization perfectly well, and the bottom is clearly visible up to the edge. I have by numerous experiments ascertained that tin does not appreciably affect the growth of bacteria; aluminium is less suitable, but duralumin could be used instead of tin, if sufficiently thin rims could be made with this alloy.[1]

3. A more expensive form of metal rim has also been made for me, which consists of two concentric rings of well-tinned metal (block tin or duralumin would be better); the inner is screwed into the outer, which is provided with a flange, against which the glass bottom plate is fixed when the inner rim is screwed home (Fig. 3). The advantage of this form, which is more expensive, is that the glass plate can be replaced easily when broken.



3. A "plating dish" made by fixing a glass plate by screwing two metal rings together.
4. A "plating dish" made by fixing a rim of metal to a glass plate by means of coagulated albumin or collodion.

4. A much older design (which I used as far back as 1887, in order to obtain even layers of cultivating media, and plates more suitable for photographic purposes than those made in Petri dishes) is even simpler, but somewhat less convenient than the previous forms. It consists of a square or round tin frame; one surface is perfectly flat, and is fixed to a bottom glass plate by means of coagulated blood serum, collodion, or oxidized linseed oil (Fig. 4).

To make a plating dish with such a frame, a perfectly clean glass plate of suitable size and shape is placed over a metal plate heated to the temperature of boiling water. The surface of the frame which is to be fixed to the glass is painted evenly with fresh blood serum or white of egg. The frame is then pressed with the painted surface against the hot glass, and allowed to remain under slight and even pressure for a quarter of an hour or longer on the hot plate. At the end of that time the albumin is quite coagulated and dry, and the frame is so firmly adherent that sterilization by steam can be carried out several times without causing any separation.

All this apparatus can be obtained from Messrs. Chas. H. Hearson and Co.

REFERENCE.
[1] The Action of some Metals upon Certain Water and other Bacteria, *Journ. Roy. San. Inst.*, vol. xxxv, No. 6, 1914.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MENTAL SYMPTOMS IN ACUTE TETANUS.

CAPTAIN EVERIDGE'S case of tetanus complicated with mental symptoms (BRITISH MEDICAL JOURNAL, March 25th) reminds me of a very similar case I had under my care in 1891. A negro convict at the Penal Settlement in British Guiana was admitted with tetanus of moderate severity. I treated him with chloral hydrate, giving just sufficient to keep him constantly under its influence.

The case, though not severe, was obstinate, and the total amount of chloral administered was considerable. As he was recovering from the tetanus symptoms almost identical with those described by Captain Everidge developed, hallucinations being very marked. There was no rise of temperature, which had not at any time during the attack been much above normal.

I attributed the mental symptoms to the chloral and discontinued it, and the symptoms gradually passed off. Recovery was complete about a week after the chloral was stopped. In Captain Everidge's case the chloral dosage was large, and in view of my own case I think the mental symptoms might be more rightly attributed to this than to the carbolic acid.

W. F. LAW, Lieutenant (temporary),
Military Hospital, Cork. R.A.M.C.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

IT is hardly likely that the proposal to utilize an incision in the inguinal region for dealing with all, or most, affections within the scrotum contains anything particularly novel, but the success which has followed my own efforts tempts me to give it publicity. The chief reason for adopting the incision is to obtain a route into the scrotum that avoids the skin of this region. I doubt if there is any part of the body surface so difficult to sterilize or render aseptic. The anatomical construction of the region largely accounts for this. The skin is in a constantly corrugated condition, and for that reason difficult to cleanse by the ordinary processes of bodily ablution. It possesses an unusually large number of very coarse hairs which implies large hair follicles capable of harbouring various kinds of micro-organisms. Among the ordinary run of hospital patients the skin of the scrotum is frequently deeply ingrained with "dirt." Thus, then, it frequently happens that by none of our ordinary antiseptic applications can we gain that amount of sterilization which will ensure an incision through the scrotal skin remaining aseptic. Another rather striking feature about the skin of the scrotum is the readiness with which it sweats when confined under a dressing. The surface layer of epithelium is at off, and this, with the exudation, produces a particularly offensive odour. Such a condition readily infects any wound made for dealing with intrascrotal conditions. The difficulty encountered in trying to render the skin surgically clean seems to be due to the peculiar susceptibility it has to either carbolic acid or to iodine. I have often seen the application of either of these agents—and I might add also rectified spirit—lead to an amount of irritation that sometimes presented the red, weeping appearance of an acute eczema. Why this should happen it is difficult to say, except it be that the corrugated condition of the skin creates small recesses in which the solutions lodge, and so have a longer period upon which they can act on the tissue. Apart from all considerations connected with the difficulty of rendering the skin aseptic, there is another disadvantage, and that is the extreme degree of venous vascularity of the scrotum; this might not in itself be difficult to deal with were it not for the laxity of the tissue in which the many venules are coursing. It is not easy to secure these vessels by ligature; and we have no means of exercising the pressure which it is possible to apply in other parts of the body. The result, too frequently, is oozing into the scrotum and distension of the part with blood clot. All these drawbacks are overcome by approaching the scrotal cavity through an incision made in the inguinal region. When the inguinal canal is freely opened up the contents of the scrotum can be withdrawn into the wound and dealt with as required. We can thus deal with any condition of the testicle, with hydroceles, and with varicoceles. It is not possible to ensure, when, for instance, we have had to remove the testicle or dissect out the sac of a hydrocele, that no oozing of blood will take place into the lax tissues of the scrotum; for this reason, therefore, it is advisable to pass a drainage tube down to the bottom of the scrotal cavity; as an aid to proper drainage, it is of considerable advantage to raise and support the scrotum on a thin wood or cardboard shelf secured between the legs.

While this particular incision is frequently used for excising a portion of the pampiniform plexus in varicocele by withdrawing the cord with the dilated plexus of veins from the scrotum, I have not seen any mention of its employment for dealing with hydroceles and testicular affections of reasonable proportions. It is more specially for these two latter conditions that the inguinal approach to the scrotal receptacle seems worthy of being more widely known.

A. ERNEST MAYLARD, B.S., M.B.Lond.,
F.R.F.P. and S.,
Surgeon to the Victoria Infirmary, Glasgow.

EARLY DIAGNOSIS OF WHOOPING-COUGH.

THE early diagnosis of whooping-cough is one of the trials of the general practitioner, and, in the absence of an epidemic, one is liable to be misled into allowing a child with an apparently harmless cough to infect others while the unmistakable signs which subsequently develop are still lacking.

During an outbreak last year I had considerable opportunity for observing probable cases in the earliest stages, and I found that every case of suspicious cough which showed marked conjunctival congestion in the region of the external canthus subsequently developed whooping-cough. In examining for the sign one directs the patient to look towards the nasal side of the eye under examination, when, on separating the lids at the external canthus, a tumid, congested mass somewhat resembling a large phlyctenule may appear on the bulbar conjunctiva, just within the external canthus. This swelling may or may not be accompanied by injection of the palpebral conjunctiva, but I have come to regard it as an indication in doubtful cases of this nature.

Malvern. H. W. JACOB, M.D.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

KING'S COLLEGE HOSPITAL.

A CASE OF HIATAL OESOPHAGISMUS IN A MAN AGED THIRTY-SIX YEARS.

(Under the care of Mr. BOYCE BARROW.)

[Reported by C. P. G. WAKELEY, M.R.C.S., L.R.C.P., House-Surgeon; Temporary Surgeon, R.N.]

E. C. B., aged 36, was admitted to King's College Hospital on October 5th, 1915.

History.

He was healthy up to the age of 20, when he had a bad attack of pleurisy with double pneumonia; soon afterwards he began to vomit after food, and had a cough which kept him awake at night, and persisted until he vomited; then he was able to sleep. This occurred two or three times a week. The vomiting became gradually worse, and the patient developed a feeling of choking after meals, sometimes in the middle of a meal; this condition was relieved by brandy, and the food seemed to pass into the stomach. At the age of 23 he went to Bournemouth for a rest cure; afterwards he was advised to go to the Woking Cottage Hospital, where he was treated for gastric ulcer for six weeks. As his condition did not improve, he was sent to Guy's Hospital; here he was fed by nutrient enemata, and only given fluids to drink, but the vomiting persisted. After this he lived at Mere in Wiltshire for two years; he was under constant supervision, and was given bismuth for the gastric condition. In 1912 a surgeon

told him he was suffering from excess of gastric secretion, and advised him to wash out his stomach every day; the sickness was temporarily relieved by this, but gradually returned. In 1914 another surgeon told the patient that he was suffering from intestinal stasis, and advised resection of the colon. This was refused, and in October, 1915, he was admitted to King's College Hospital under Mr. A. Boyce Barrow.

Condition on Admission.

The patient was very thin and weak-looking; he vomited all food, even fluids, and was fed by nutrient enemata for the first two days in hospital. The stomach was washed out twice a day, but even this did not stop the vomiting. A test meal was given on two occasions; both times the patient vomited the whole meal about three-quarters of an hour afterwards. The report from the clinical laboratory was as follows: Volume, 14 c.c.

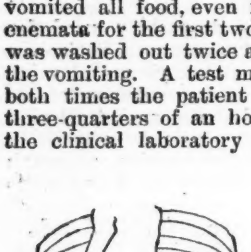


FIG. 1.—Immediately after meal.

FIG. 2.—Thirty minutes after.

acidity = 0.017 per cent. HCl; no physiological HCl present; lactic acid absent. As this report seemed to indicate disease of the stomach, a bismuth meal was given. The figures, which are tracings taken from the *x* ray plates and reduced, show the condition of affairs at various times after the meal. Fig. 1, taken immediately after the meal was finished, shows marked dilatation of the oesophagus to the right side; no food had entered the stomach. Fig. 2, taken thirty minutes after the meal, shows food entering the stomach from the oesophagus and a small portion in the pyloric end of the stomach. Fig. 3, taken an hour and three-quarters after the meal, shows food still in the oesophagus, a small amount in the pyloric end of the stomach, and some in the small intestine. Fig. 4, taken three hours after the meal, shows that the oesophagus still contained food, and was dilated; and Fig. 5, taken six hours after the meal, shows the oesophagus in a similar condition. Fig. 6, taken twenty-three hours after the meal, shows traces of

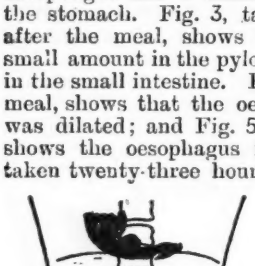


FIG. 3.—One and three quarter hours after meal.

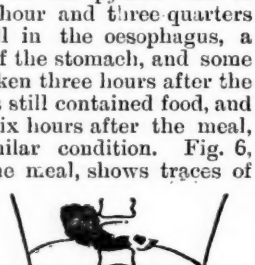


FIG. 4.—Three hours after.

food in the oesophagus and some in the ileum. Fig. 7, taken thirty-one and a half hours after the meal, still shows bismuth residue in the oesophagus, but some of the food had reached the caecum. Shortly after the last *x*-ray plate was taken the patient vomited 5½ oz. of food consisting mostly of bismuth. The conclusion to be drawn from these series of *x*-ray photographs was that there was a condition of cardiospasm of the oesophagus. It was impossible to pass a bougie into the stomach, even when passed down an oesophagoscope. An opaque bismuth bougie was passed as far as possible, and the patient examined by the *x* rays. The bismuth tube was seen to pass along the upper surface of the diaphragm and lie beneath the heart; it could not be made to enter the stomach. Fig. 8 is a drawing (reduced) from the *x*-ray plate.

Operation.

Mr. Barrow decided to operate with the idea of trying to dilate the stricture from the stomach, and, failing this, to perform a gastrostomy. On October 13th an incision was made one inch to the left of the middle line, the rectus muscle exposed and split longitudinally, and the posterior layer of the rectus sheath and peritoneum incised; the stomach was found empty, and in a semi-contracted condition. There was no sign of malignant disease or any thickening in the region of the cardiac orifice, the opening was very small, and could be felt by a finger invaginating the anterior wall of the stomach and pushing this upwards to the cardiac orifice. The rest of

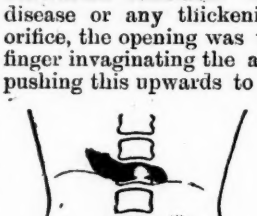


FIG. 5.—Six hours after meal.

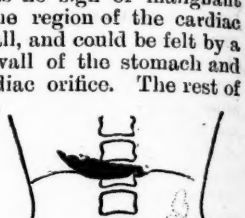


FIG. 6.—Twenty-three hours later.

the alimentary canal appeared to be normal. The stricture was dilated to a certain extent by the index finger of the operator being pushed well through the cardiac orifice into the lower end of the oesophagus; adhesions were felt to give way. It was decided to perform a gastrostomy in case the stricture closed again. A portion of the anterior wall of the stomach was attached to the abdominal wall after the manner suggested by Frank, but the viscus was not opened. The abdominal incision was closed.

The patient was very comfortable, and did not experience any anaesthetic vomiting. He was fed on liquids for the first two days, then he was given milk puddings, which kept down; from that he was given fish, chicken, and meat, things he had not been able to eat for sixteen years. The patient left hospital on November 5th. He never vomited once after his operation, and during the last two weeks in hospital gained 5 lb. Since leaving hospital his doctor in Dorset writes: "He has gained over a stone in weight since leaving hospital, and eats all kinds of food with a hearty appetite."

The following points require a little consideration:

1. The test meals which were given undoubtedly never reached the stomach, but remained in the dilated lower

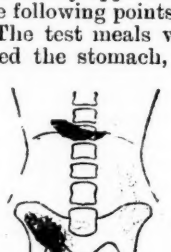


FIG. 7.—Thirty-one and a half hours after meal.

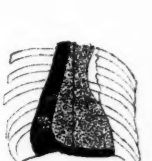


FIG. 8.—Position of oesophageal bougie.

end of the oesophagus, and this explains the fact that there was a total absence of hydrochloric acid; this fact, together with the wasted condition of the patient, suggested gastric carcinoma.

2. The dilatation of the oesophagus was towards the right; the cause of this seems to be the fact that the aorta lying towards the left side and being a resisting structure prevents any dilatation towards the left side.

In conclusion, I should like to express my thanks to Mr. A. Boyce Barrow for allowing me to publish this case, and to Dr. R. Knox, honorary radiographer to King's College Hospital, for his kind help in getting the tracings of the bismuth meal.

Reports of Societies.

THE RATIONALE AND PRACTICE OF CHEMIOTHERAPY.

AT a meeting of the Dermatological Section of the Royal Society of Medicine on April 13th Mr. J. E. R. MCDONAGH gave a summary of his researches on syphilis, culminating in the introduction of some new remedies. The investigation of the chemistry of the parasite showed, he said, that it consisted mainly of lipoid-globulin molecules, more resistant to reagents than the lipoid-globulin molecules of the host's cells. The conditions leading to infection were conceived to be as follows: Should a spore be able to take some of the oxygen required by the cell it hoped to enter, the normal ratio between the oxygen and the carbon dioxide of that cell would cease to exist, the consequence being that the normal hydrogen ion concentration or the oxidase-reducase system would be temporarily deranged, with the result that the local surface tension of the cell would be such that the spore was easily able to enter it. Defence against the parasites was effected locally by the plasma cells, and generally by the serum antibodies, and was due in both cases to lipoid-globulin molecules. The death of the parasites was due to the chemico-physical process of adsorption, and was regulated by three factors: (1) Specificity, which depended on the existence of homologous stereochemical molecular configuration on the part of the molecules of the host and of the parasite; this was regulated mainly by the amino-groups; (2) the high degree of permeability of the adsorbed molecules; and (3) the amount of active oxygen, which depended on an oxidase-reducase system associated with serum complement. Treatment assisted the host's resistance by increasing his amount of active oxygen; this could be effected both by metals and non-metals. They became attached to the lipoid-globulin molecules, and acted as catalysts; strongly adsorbed metals (arsenic, aluminium, iron, and possibly antimony and mercury) produced extra active oxygen directly; non-metals (iodine and sulphur) acted indirectly by increasing the production of active hydrogen. These and other considerations led to the investigation of various drugs. A sulphur compound—diortho-aminothiobenzene (" intramine ") — was found to act extremely well. It was absolutely non-toxic. The usual dose was 1 gram suspended in 9 c.cm. of olive oil or liquid paraffin and injected intramuscularly. The pain which followed usually rendered the patient *hors de combat* for a week; but however bad the local reaction, no induration was left. In early syphilis salvarsan should be given first and followed by intramine; the arsenical preparation killed the spirochaete and the sulphur compound killed some of the other phases of the *Leucocytozoön syphilidis*, so that symptoms vanished more quickly than after salvarsan alone. In the recurrent and late stages the effect of intramine was most marked, and late syphilitic lesions, which had remained practically uninfluenced by salvarsan, with mercury and iodides subsequently, had been treated with immediate success. Good results were obtained in syphilitic glossitis of twenty-five years' duration and in degenerative myelitis and encephalitis, also in cerebro-spinal meningitis. Iodine, like intramine, adsorbed hydrogen and hydroxyl ions to form peroxide for the oxidase system, hence its action was more marked in late than in early syphilis. Iodine increased the action of intramine, and should be prescribed before the latter, intravenously in the colloidal form. The effect of intramine in late syphilis could be enhanced by following up with injections of metallic compounds. A striking case was cited by way of illustration of a patient suffering from the depressive type of degenerative encephalitis, who was given two intramuscular injections of intramine; most extraordinary improvement followed. A third injection made the case worse, according to the expectation of Mr. McDonagh, who hazarded the opinion that if a metallic compound were now to be given the improvement would be sudden and greater than on the first occasion. An intravenous injection of galyl was administered, with the result that in forty-eight hours the patient had become a rational individual. Interstitial keratitis, a lesion uninfluenced by salvarsan, cleared up at once with intramine in a most marvellous way. Intramine might also be employed in the treatment of lupus, chronic gonorrhoea, and chronic ulcers. Ehrlich was led to experiment with arsenical preparations because the disease which he hoped to combat was sleeping sickness and arsenic was the body which appeared to have the greatest influence on that disease. Mr. McDonagh said that he had tested compounds of iron and of aluminium; an organic iron compound, " ferrivine," was non-toxic; a 1 per cent. solution was stable and did not oxidize in air. Occasionally typical shock or collapse followed the injection of 200 or 300 c.cm. Experience gained with this compound had convinced Mr. McDonagh that the need for the use of a toxic metal like arsenic would soon no longer remain. In general, the symptoms of primary and generalized syphilis disappeared within four days after the second or third intravenous injection. Induration of chancres and dense infiltrated brownish papules resisted ferrivine as they did salvarsan, but disappeared within a fortnight if intramine were prescribed after the second or third injection. The theory of complement fixation was also touched upon, and Mr. McDonagh said that the Wassermann reaction did not afford an indication of the colloid state of the lipoid-globulin molecules or a measure of their number, but this knowledge was necessary both for diagnosis and for regulating treatment; thus it was no certain indication of active syphilis or that the patient required treatment. His emulsoid-suspensoid reaction overcame this difficulty.

On the suggestion of the PRESIDENT, it was decided to confine the discussion in the first instance to the chemical aspect of the work, and to discuss the clinical side later.

Professor BAYLISS asked for fuller explanation and experimental data with respect to a large number of Mr. McDonagh's statements. He considered that it was unfortunate that oxidation and reduction reactions should have been selected as the basis for the theory of chemiotherapy. Of all processes taking place in the living body they were those the mechanism of which was most obscure. With regard to the use of the term " oxidase-reducase," it was impossible that the same system should be simultaneously both oxidizing and reducing in its action on a given body, hence the sense in which the expression was used appeared unclear. In speaking of the part played by lipoid-globulin molecules, it had been stated that immunity and the formation of antibodies in the host was due to alterations in these molecules, while changes in similar constituents of the parasites led to their being killed. Professor Bayliss wished to know what proof there was of the existence of such changes and what their nature was. It had also been said that the development of immunity was due to an increase in size of these molecules, which increased their adsorptive power; but as adsorption had been shown to depend on surface, such an increase in size of the molecules would tend to diminish their adsorptive power. Professor Bayliss added that he could not follow the statements that specificity depended on amino-groups and that adsorption depended on active oxygen. Again, with reference to Mr. McDonagh's explanations as to why one substance, arsenic, should be toxic and another, sulphur, non-toxic, the speaker pointed out that these were fundamental differences the elucidation of which demanded knowledge not at present available.

Dr. C. H. BROWNING associated himself with Professor Bayliss's views and expressed a doubt whether in their present phase and without experimental proof the theories which had been advanced would contribute materially to the understanding of the subject by others. This, however, did not at all detract from the therapeutic results quoted. To be able to clear up with certainty and rapidity interstitial keratitis by an injection of intramine was an achievement of the first magnitude. It was highly interesting that the therapeutic value of this organic sulphur compound, which had been prepared upwards of thirty years ago, should now for the first time be recognized. The fact that this drug was closely similar to salvarsan in its molecular constitution was a striking testimony to the general soundness of the work of Ehrlich, who had not confined his attention entirely to arsenical compounds; work interrupted by his death had shown that the combination of salvarsan with copper yielded a

substance superior to salvarsan itself in the experiments which had been carried out.

In the course of further discussion Mr. J. WARD quoted investigations on the bactericidal action of various colloidal solutions, arsenic being exceedingly potent; he regarded this as in favour of Mr. McDonagh's theory; and Dr. F. H. TEALE pointed out that lipoids were not essential either to antigens or to antibodies. Sir MALCOLM MORRIS emphasized the necessity for a thorough discussion of the clinical aspect at an early date, in view of the great importance, especially at the present time, of deciding what therapeutic measures were the most efficacious in the treatment of syphilis. Lieutenant-Colonel HARRISON commented on the severe pain which he had observed to follow injections of intramine, and Mr. C. H. MILLS spoke of encapsulation of the unabsorbed drug.

Reviews.

CEREBRO-SPINAL FEVER.

As a result of their experience with cerebro-spinal fever during 1915 at the 1st Eastern General Hospital, Captains MICHAEL FOSTER and J. F. GASKELL have written an excellent practical account of the disease, its pathology, bacteriology, and management.[1]

Beginning with a historical account, they note that cerebro-spinal fever made its first recorded appearance in the year 1805—at Geneva. Until 1902 it was comparatively little known in the United Kingdom; studies of its epidemiology emphasize the importance of human carriers in its spread, and Netter has given a most conclusive account of the way in which the disease was carried all over France, from the Pyrenees to the Rhine, by the French 18th Light Infantry during and after 1839.

The onset of the fever is generally marked by a rigor, followed by headache and vomiting in practically all cases; delirium often appears later, with restlessness and floccitation. That the height and duration of the fever give no criterion as to the severity of the case is remarkable; in the fulminating cases urgent dyspnoea is a highly characteristic sign. The authors describe four varieties of rash: a uniform macular rash, a fugitive erythema in different parts of the body, a petechial rash of a purple or copper colour at points of pressure, and a purpuric rash occurring in large purple spots or vibices, such as are common in all profound infections. Herpes was seen in 14 out of 39 patients. Inability to swallow was present in 6 out of 39 cases. The authors attach great diagnostic value to the presence of the sign first described by Kernig of Petrograd in 1884—contracture or flexion of the knee and hip when the patient is caused to assume the sitting posture; this is an early sign, present in all but the fulminating cases within twenty-four hours. Nystagmus was seen in 3 out of 39 cases; iridocyclitis leading to suppurative panophthalmitis occurred once in 91 patients; iridocyclitis was observed by Morax in from 3 to 6 per cent. of the cases in a Parisian epidemic. Implication of the respiratory and circulatory systems is said not to be common; constipation is almost the invariable rule, and haematuria without apparent permanent damage to the kidneys may occur during the acute stage.

Stress is laid upon the importance of early diagnosis. Kernig's sign is of great value here, more particularly as it points to the advisability of performing lumbar puncture. This operation, the authors state, should always be done under a general rather than a local anaesthetic; they find that no harm ever follows the general anaesthesia, but rather good, for the patient often gets several hours of peaceful sleep after it. From two to three ounces of cerebro-spinal fluid may be removed with advantage. When the fluid has been withdrawn, the further diagnosis rests with the bacteriologist.

From the clinical point of view the authors divide cases of cerebro-spinal fever into acute cases ending in death or convalescence within a fortnight, and subacute and chronic cases in which the issue remains doubtful for a longer period. In the chronic cases death, when it occurs, is due to hydrocephalus, with increasing headache, perhaps a rigor, retention of urine, and unconsciousness. When hydrocephalus supervenes the optic discs show nothing beyond fullness of the retinal veins; Macewen's sign (a more resonant note on percussion of the skull about the pterion) may be of value in diagnosis here. No satisfactory treatment, surgical or otherwise, for this hydrocephalus is known.

As for the period of incubation in cerebro-spinal fever, the authors bring forward reasons for supposing that it does not surpass five days and may last only twenty-four hours. The prognosis is hopeless in fulminating cases; it is better the earlier treatment is instituted, and in patients aged between 23 and 30, and also in the later periods of an epidemic. The remote prognosis is usually good, as sequelae other than those pertaining to the nervous system are practically unknown; sequelae, too, are much rarer nowadays than they were last century. Treatment should consist in the early and daily repeated performance of lumbar puncture, fluid being allowed to run out until it issues at the rate of one drop in two or three seconds. The alleged danger from too rapid lowering of the pressure of the cerebro-spinal fluid may, it is stated, be disregarded. The authors performed lumbar puncture on thirty-two occasions in the course of sixty days in one patient, who made a complete recovery and returned to military duty. They note that the intrathecal injection of antimeningococcal serums has proved disappointing in their hands, as it has in the hands of many others. They have seen no good results from the exhibition of hexamine (urotropine). The headache of cerebro-spinal fever can be relieved by morphine only; there appears to be no danger of forming a morphine habit by giving it for this purpose.

About half the volume is given to the pathology, epidemiology, and bacteriology of the disease, the former being illustrated by eleven excellent plates, eight of them in colour. Many points of obscurity in the epidemiology of cerebro-spinal fever remain to be cleared up. Epidemic outbreaks are common in schools and among troops, but not, apparently, in other communities. In studying an epidemic one of the striking features observed is the disconnected or sporadic way in which the bulk of the cases occur. Infection may spread from case to case directly; more often it appears to be passed on by means of one or more carriers. No doubt the susceptibility of the individual is highly important here; it is also a very variable factor in the same person at different times, and it is often found that some comparatively slight illness (influenza, a sore throat) has preceded an attack of cerebro-spinal meningitis. Among a civilian population age appears to be a highly important factor, children and adolescents being particularly prone to infection; among soldiers fatigue does not seem to predispose to the disease. The disease is essentially one of the winter and spring, connected with rapid changes in the temperature and high winds. The authors come to the conclusion that the meningo-coccus is spread by being carried in the nose and throat of normal individuals, convalescent patients, and patients actually suffering from the disease, and is imparted to others by direct contagion—kissing, coughing, sneezing, and the like. It is impossible in this brief notice to give any account of the precautions to be taken to prevent the spread of cerebro-spinal fever, or of the pathology and bacteriology of the disease; the authors do ample justice to all of these subjects.

The book is excellently arranged, well written, and full of practical details that make it invaluable for the medical man and laboratory workers who have to deal with cases of cerebro-spinal fever. It may be most warmly recommended to their attention.

[1] *Cerebro-spinal Fever.* By M. Foster, M.A., M.D., Captain R.A.M.C.(T.F.), and J. F. Gaskell, M.A., M.D., Captain R.A.M.C.(T.F.). Cambridge: The University Press. 1916. (Imp. 8vo, pp. 230; 11 plates, 5 plans, 3 figures. 12s. 6d. net.)

SWANZY'S OPHTHALMOLOGY.

THERE is, perhaps, no English textbook on the diseases of the eye that has enjoyed a wider popularity, and at the same time given its students a better introduction to the study of ophthalmology, than the work of Swanzy of Dublin.[2] Through ten editions it passed whilst it was directly the result of Swanzy's labours or in some later editions with the help of his colleague, Dr. Louis Werner.

[2] *Swanzy's Handbook of Diseases of the Eye and their Treatment.* Edited by L. Werner, M.B., F.R.C.S.I., Sen. Med. Univ. Dub. Eleventh edition. London: H. K. Lewis. 1915. (Demy 8vo, pp. 664; 9 plates, 261 figures. 12s. 6d. net.)

Now the eleventh edition is before us, and although the title of the work is the same, the task of editing the new edition has fallen solely to Dr. WERNER. All who knew Swanzy and his work will regret the loss of his genial presence and influence; but in the conduct of his textbook he has found a worthy successor in his former colleague, and the success of the past bids fair to be carried forward into the future. In appearance and general arrangement the new edition does not differ from the last, but much care has been expended on the revision of the work so as to bring it thoroughly abreast of the most recent gains in the diagnosis and treatment of eye conditions.

The chapter on glaucoma shows evidence of much care in revision. There is an excellent description of Schiötz's tonometer and the method of its use in determining the tension of the eye. In the same chapter the accounts of the several operations for chronic glaucoma are given with much lucidity. We particularly commend the manner in which these operations are arranged in chronological order; this has appreciable advantage to the student, who is able to see how the various procedures arose out of each other, one man's discovery leading to the improved technique of another. Not only is there a very real aid to understanding and memory in such a method, but there is the additional advantage that the credit of an advance in method is spread so far as is possible amongst those who helped to bring it about.

The chapters on the diseases of the retina have been rearranged. More attention has been given to the subject of retinal angio-sclerosis, and the result is a section that might well find a place in every textbook of medicine. Too few men in practice realize that there is no better means of determining the arterial condition of their patients than by the direct examination of a fine field of vessels in the fundus oculi. The judgement to be gained from such an examination is at least equal to and often better than that which can be gained by the use of a manometer.

Small details of practical value have not been overlooked by the editor. This is evidenced by the inclusion of a very useful note on the use and care of artificial eyes.

There are few English written books on eye diseases which can be recommended with greater certainty of satisfaction, both to the student and the practitioner, than the new "Swanzy."

NOTES ON BOOKS.

THE eighth edition of Southall's *Organic Materia Medica*[3] has been brought up to date and revised by Mr. E. W. MANN, and is in accord with the *British Pharmacopoeia* of 1914. This well-known book is designed for the use of teachers and students of pharmacology, chemists and druggists, and is a mine of valuable botanical, pharmacognostic, and chemical information. Dr. William Southall, author of the first edition, died many years ago; in the present edition his name is misspelt on the back cover, half-title page, and title page. *Sic transit!*

It is difficult to see what interest or amusement the general reader can find in an elaborate study of a born-tired, such as is presented by IVAN GONCHAROV in a novel entitled *Oblomov*,[4] which C. J. Hogarth has been at the pains to translate into English. The thing is no doubt very well done, in that the description is very true to life, but was it worth doing? To study the processes of disease for the purpose of checking and overcoming them is a worthy and laudable occupation, whose repellent character is compensated by the object pursued; but to study the processes of disease for the purpose of depicting them to the morbid curiosity of the public, to revel and wallow in morbidity, is neither pleasant nor profitable, neither amusing nor instructive. If the study of *Oblomov*, if the description of his career from infancy to decrepitude threw any light on the causes of his malady or on the means of treating it, the book would have an undoubted value; but it does not. It is merely descriptive. It is a description of a subject that is morbid and unpleasant from beginning to end; and, worse than this, it commits the unpardonable literary sin—it is tedious. It is clean, indeed, and, as it belongs to the school of Zola, this is a merit to be recorded; but if it is not as dirty as Zola, it is almost as tedious. There is evidently a market for the book, in Russia at any rate, and we can only say, in the well-worn phrase, that for those who like this kind of thing this is the kind of thing they will like. Incidentally it depicts the narrow, ignorant, limited life of the dwellers in a rural estate in Russia, and the explosion and turmoil that are produced in the family of the squire by the mere reception of a letter about nothing in particular.

In their elementary book on *The Body in Health*[5] Messrs. O'SHEA and KELLOGG have endeavoured to present modern physiology in a form attractive for pupils in elementary schools. It is written quite clearly, and in a style alternating between that of the popular press on the one hand and the nursery on the other. A special chapter is given to "The Body's Enemies," which are, oddly enough, said to be tobacco and alcohol. Yet this is a book that may be recommended for use in Sunday schools and the like.

[3] *Southall's Organic Materia Medica.* Revised and enlarged by E. W. Mann, B.Sc.Lond., F.I.C. Eighth edition. London: J. and A. Churchill. 1915. (Demy 8vo, pp. 410. 7s. 6d. net.)

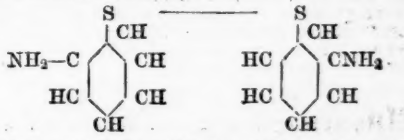
[4] *Oblomov.* By Ivan Goncharov. Translated from the Russian by C. J. Hogarth. London: G. Allen and Unwin, Ltd. 1915. (Cr. 8vo, pp. 317. 6s.)

[5] *The Body in Health.* By M. V. O'Shea and J. H. Kellogg. Health Series of Physiology and Hygiene. New York: The Macmillan Co. 1915. (Cr. 8vo, pp. 332; illustrated. 3s. 6d. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

"Intramine" in Syphilis.

As is well known, the late Professor Ehrlich put forward the "side-chain" theory, according to which the reaction between drug and parasite is due to the nature and conformation of portions of the molecules, so that one fits to the other somewhat in the same way as a key fits a lock. Mr. McDonagh dissents from this view, and some account of his views is given in a report of a discussion in the Dermatological Section of the Royal Society of Medicine published at p. 591. It is asserted that oxidizing enzymes have their action increased by metals, but that oxidation can also be increased indirectly by stimulating reduction by means of non-metals. Many of the statements made appear to be highly speculative, and in the present state of our knowledge not capable of proof; the practical outcome is that, in Mr. McDonagh's view, the alternate exhibition of certain metallic and non-metallic compounds may be expected to be a useful means of treating syphilis and some other diseases; in particular, attention is directed to di-ortho-amino-thio-benzene,



a compound to which Mr. McDonagh has given the name "intramine." This is a yellow crystalline powder, which is suspended in oil and injected intramuscularly; it is said to be quite non-toxic, and therefore capable of being given in large doses, and to be more efficient than salvarsan at certain stages in cases of syphilis. Compounds of aluminium and iron, known as "aluvine" and "ferrivine," which may be used alternately with intramine, are also described. In certain cases treatment by intramine is reported to have given excellent results; and the clinical effects of the drug are to be discussed at another meeting of the same section. Intramine is made and sold by the British Drug Houses, Ltd., Graham Street, N., and supplied in ampoules containing 1 gram of the solid in 10 c.cm. ready for injecting. Since it is not affected by the action of the air, it is not necessary for the whole contents of an ampoule to be used up at once.

Sanitas-Sypol.

We have recently received a sample of sanitas-sypol, a disinfectant manufactured by the "Sanitas" Company, Ltd., and intended to replace lysol for use in surgery. It is a clear fluid, perfectly miscible with water to form a bright transparent solution, and containing, according to our analysis:

Combined alkali, calculated as potassium hydroxide	3.32 per cent. by weight
Cresols	48.5 per cent. by weight.

No free alkali is present. These characters show that it is an excellent preparation, well adapted to the purpose for which it is put forward.

Indian Thymol.

Messrs. Smith, Stanistreet and Co., 9, Dalhousie Square, Calcutta, have submitted to us a sample of Indian thymol, which we understand they are now in a position to produce in large quantity. The sample in question is excellent in colour and odour, complies with

the requirements of the *British Pharmacopoeia 1914*, and altogether compares very favourably with the German product obtainable before the war. So far as quality is concerned, therefore, the product of this firm should have no difficulty in permanently replacing thymol manufactured in Germany.

MEDICAL AND SURGICAL APPLIANCES.

MR. H. S. SOUTTAR has designed, and Messrs. Allen and Hanburys have made, a glove to maintain the extended position of the hands and fingers in paralysis of the extensor muscles, and the relaxation of those muscles essential to their recovery. A leather armlet above the elbow is connected by a detachable leather strap to the

wrist of a stout leather glove. Inside the glove elastic bands pass from the wrist to the top of each finger. On contraction of the flexors the fingers and wrist can be flexed and the hand used.

ROYAL MEDICAL BENEVOLENT FUND.

(Continued from p. 559.)

THE following is a continuation of the summary of cases relieved by the Committee at its meeting in March:

Widow, aged 47, of M.D.Edin. who practised at Glasgow and died in 1912. Applicant was left unprovided for with seven children. The older ones are now married, and unable to help, and the four younger children are at school. Only permanent income £22 from other charities. Tries to supplement this by taking in boarders, but unsuccessfully. Relieved four times, £72. Voted £20 in twelve instalments.

Daughter, aged 65, of M.R.C.S.Eng. who practised in London and died in 1853. Left totally unprovided for, and has worked in various ways to try and support herself, but was unable to provide for her old age. Her income now from a charity and friends totals £28, and she tries to supplement this by poultry-keeping. Relieved three times, £30. Voted £6 in twelve instalments.

Daughter, aged 67, of M.R.C.S.Eng. who practised in North Devon and died in 1903. Was left totally unprovided for, and her health is exceedingly unsatisfactory, which has prevented her from working. Her only income has been a few shillings weekly from friends. Previous help, £14. Voted £12 in twelve instalments.

Widow, aged 46, of L.S.A.Lond. who acted as ship's surgeon and died in 1912. Was left with three children, aged 8 to 24. The eldest is unable to assist, and the others are too young to do anything. Applicant is now working as a typist at £1 a week, but finds it insufficient to keep four persons. Relieved four times, £18. Voted £12 in twelve instalments, and referred to the Guild.

Widow, aged 66, of surgeon in the Army Medical Service who died in 1888. Only income a War Office pension. Was operated upon six years ago for cancer and had breast removed. Has four children, but all married, and none able to help. Wants a little help to furnish spare bedroom, so that she might take in a paying guest. Relieved once, £16. Voted £5, through the Guild.

Subscriptions may be sent to the honorary treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.

THE ROYAL MEDICAL BENEVOLENT FUND GUILD.

The Royal Medical Benevolent Fund Guild has issued its sixth annual report. It was presented to the annual general meeting at the Mansion House on February 21st by the Lord Mayor, as reported in the JOURNAL at the time. All cases helped are either qualified medical men, their widows and children, or unmarried daughters of such practitioners. The Guild not only makes gifts in money and kind when satisfied that they are needed, but also gives personal service, and for the conduct of this part of the work has a special visiting committee. It is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted are such as are suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.

NOTIFICATION OF PREGNANCY.

By J. W. BALLANTYNE, M.D.,
EDINBURGH.

THERE has been some talk of late of the desirability of introducing notification of pregnancy into Great Britain, and there have even been whispers of its being made compulsory. Before, however, any such proposals are accepted by the medical profession, it will be well to inquire what benefits are expected to flow therefrom.

Pros.

I. If the country had a system of compulsory notification of pregnancies it would be put in possession of figures respecting the number of infants on the way, and when these were compared with the number of births of living children, it would be made aware of the antenatal losses incurred. It would know what percentage of the starters in life's antenatal race had failed to breast the tape; it would also, with the help of the returns as to premature births obtained under the Notification of Births Act, have an inkling of the proportion of competitors who fell out before the last lap was entered upon. This information would doubtless come as a shock to some, it would awaken all to a better realization of the amount of potential lives that are being lost annually, and it would enable a few to say, "I told you so."

II. It would impress upon the general public, and perhaps specially upon the woman's part of it, the emphasis which is now at last, after many years, being laid upon pregnancy, for it would be taken for granted that some good purpose was intended to be served, beyond the obtaining of an estimate of the forthcoming crop of babies. It would therefore be necessary to follow on with a clear statement of the advantages which would accrue to the women notifying their pregnancies, of the benefits likely to be conferred upon the infants thus antenatally taken stock of, and of, possibly, some financial aid to be given at or after the confinement, or, better still, during the few weeks which preceded that event.

III. It would undoubtedly be a stimulus to the study of all matters relating to the hygiene and pathology of pregnancy and antenatal life, and if this stimulus produced its expected effect there would be a great increase in the frequency of antenatal treatment, and the scope of pregnancy supervision would be widened. In the long run there would be saving of lives to an unknown but certainly not inconsiderable extent.

IV. In the fourth place, it might serve to check the frequency of abortions and the use of abortifacient means.

Cons.

On the other hand, any such system of notification, especially if it were made compulsory, would arouse opposition and give origin to difficulties of many kinds.

I. The necessity for the preservation of at least a certain amount of privacy in intimate home affairs would be pleaded. During the continuance of the war and with individual responsibility and national success each playing a part, the inhabitants of these islands are prepared to write "fiction *pro tem.*" across the adage "an Englishman's house is his castle"; but the compulsory notification of pregnancy would not be proposed as a temporary but as a permanent measure, and in the intimacy of its application it would produce disquiet in the public mind. A public which, in certain places at least, is ready conscientiously to object to vaccination would be with difficulty led to put itself in the hands of the enumerators of this novel census. Neither can it be thought that "the men at the front" would easily be persuaded of the necessity of so great a degree of paternal solicitude on their behalf and in their absence.

II. There would be irritating difficulties in the details and methods of the notification. The diagnosis of early pregnancy is not very easy, and for the notification to be of real value it would require to be made early so as to check third and fourth month abortions. Perhaps it

could be called a provisional diagnosis and notification, but then its value would be greatly lessened, for sufficient care would not be taken to ensure accuracy. Then, again, what harmless and unobjectionable means would be taken to enforce notification, and what penalties would be proposed for non-compliance? Could women doctors be supplied in sufficient numbers to carry out the examinations if a demand was made for them? Would the doctors be asked to do this also gratuitously? And so on.

III. It is unnecessary to force on such legislation and introduce so many new difficulties into health affairs, for events are already spontaneously moving in the direction aimed at. Many of the advantages which may be claimed as likely to flow from compulsory notification are already in process of being gained, slowly, it is true, but surely, and with increasing facility, by means of an education of the public in the nature and hygiene of pregnancy (through the work of the Women's Co-operative Guild, antenatal consultations, books on expectant motherhood, and other bodies or means), in the necessity of propagation in a progressive nation, in the care of young and especially of neonatal life, and in a hundred other matters, amongst which the making plain of the causes, dangers, and prevention of the venereal diseases must be reckoned as an effective part. It may be confidently expected that the present falling birth rate and the rising death-rate (without taking into account the loss of life abroad) will not fail to keep the increased and increasing value of antenatal life prominently in the public mind.

Suggestions.

Let us by all means "lengthen our cords and strengthen our stakes" in every direction in such educational ways and plans. Let us, as a profession, welcome as coadjutors eminently fitted for the task the various women's associations which are imbued with a sense of the value of infantile life and are in touch with women of all classes, but especially of the working and middle; let us as doctors aid them by accepting the responsibility of supervising pregnancies from their earliest weeks, by establishing more and more maternity hospitals, centres, and homes with all the essential component parts of the prematernity system attached thereto, and by putting the best of our special knowledge and skill at the call of the women passing through pathological pregnancies and labours.

Let the midwives act in like fashion.

Let us accept as watchword the Parisian phrase of these days, "Let every necessitous woman who is pregnant or who is nursing a young child have the social, legal, and medical protection to which she is entitled as a member of a civilized society: let no mother be overlooked and no infant forgotten." Let us study what was done by Pinard and others for infant life in Paris, even when the tide of battle was daily rolling nearer and "the Medes were at her gates."

When some eight years ago Mr. Eden Phillpotts asked why we should not have a "State department for the unborn," I heaved a sigh and said to myself, "Because we should only be laughed at for our asking"; I am not so certain of the sequent amusement now. Pinard has said—and it is not unlikely that the phrase may remain after the war is over—"notwithstanding an intensive puériculture, babies are not being made and cared for as are munitions."

If there is to be compulsory notification of pregnancies, let it come spontaneously from the women's organizations; but in the meantime let us, as a medical profession, accept all the voluntary notifications which are made to us by expectant mothers, and watch over the pregnancies thus entrusted to our medical care; let us do our best to popularize correct notions of the nature, risks, and hygiene of pregnancy, and let us freely give our assistance to all agencies which have as their aim the comfort and health of expectant mothers and the welfare of young infants at the breast or in the womb. If the Insurance Commissioners can see their way to make grants to necessitous mothers before their labours, as is being done in Paris, so much the better. But let us be up and doing.

The programme of the *Office central d'assistance maternelle et infantile* in Paris in the early weeks of the war began with these appealing words:

PARISIENS,
LES PÈRES SONT A LA FRONTIÈRE:
DÉFENDONS LES MÈRES ET LES PETITS ENFANTS;
A LEUR AIDE ET VITE.

The response was immediate; fresh milk for infants and hospitals through the military authorities; money to enable expectant and nursing and necessitous mothers to rest from hard bodily toil; and a supervision of mothers and infants which caused a decrease in infantile and maternal morbidity and mortality such as could hardly have been thought possible. We are in straits not quite so pressing, but the situation is full of depressing possibilities—

Qui non est hodie,
Cras minus aptus erit.

He who is not ready to-day will be less so to-morrow.

THE OPHTHALMIC HOSPITALS OF EGYPT.

THE third annual report of Mr. A. F. MacCallan, the Director of Ophthalmic Hospitals in Egypt, is a record of steady advance in work of a most excellent character. Not even the sacrifices which the department has made owing to the war has stayed the increase of its activity. Two medical officers left for military service and two fully staffed and equipped tent hospitals, together of 150 beds, were detached for the treatment of wounded Turks on the line of the Suez Canal. Nevertheless, the number of patients increased in the year by 9,456 and the attendances of out-patients by 141,745.

During the ten years ending with 1914 no fewer than sixteen ophthalmic hospitals have been opened; all except two are endowed. Of the total cost of provision of these hospitals only £17,000 has been contributed by the Government, £49,000 was obtained by gift, public subscription, or local taxation. This is apart from the Cassel fund. The hospitals are not costly; for £4,000 a hospital with a commodious out patient department and beds for 16 patients can be built. This accommodation suffices for a daily clinic of 200 to 300 patients. Besides these there are travelling hospitals, large tents, with accommodation for 8 to 10 in-patients with attendants.

Four provinces still lack hospitals and they are too poor to provide them for themselves. Two of these provinces should have specially built dahabia hospitals, for the terrain is along the river. When a hospital is provided the Government will maintain it.

The outstanding feature of the clinical report is the note on glaucoma. Glaucoma simplex was found to be present in 2.3 per cent. of the patients seen. The cause of this prevalence is as yet undecided, though it is suggested the anatomical condition of the eye among the Egyptians, with frequently a very small cornea, is the predisposing factor. The figures for the three past years are as follows:

	1912.	1913	1914.
Glaucoma:			
Acute	3	12	17
Subacute	10	17	23
Chronic	829	902	574
Absolute	232	217	1,147
Operations for glaucoma:			
Iridectomy	60	28	25
Trephining with iridectomy	152	317	428

Care has been taken to follow up the cases of trephining to note if there is any danger of intraocular infection through the thin conjunctival covering of the new vent; only one case was found, and that in a boy of ten who had suffered from increased tension in an eye with adherent leucoma; even here there was a history of injury to the eye just preceding the final disorganization of the organ.

In the year 7,784 bacteriological examinations for the diagnosis of acute ophthalmias were made. The gonococcus heads the list with 43.6 per cent.; next come the Koch-Weeks bacillus with 19.5, and the Morax-Axenfeld bacillus with 16.6 per cent. Diphtheria accounts for only 0.96, and the streptococcus for 0.03 per cent. Gonococcal conjunctivitis is rarely accompanied by gonorrhoeal

urethritis. Infection appears to be from eye to eye. Chronic attacks are seen in cold weather, the acute being mainly seen in the hot weather. The organism, therefore, persists during the winter months on the conjunctiva of various sufferers without the necessity of a sojourn on the urethral membrane. Interesting charts are given showing the relationship of the incidence of the various forms of conjunctivitis to the meteorological conditions.

In the section dealing with the ophthalmic inspection of schools note is made of the campaign against trachoma. The general incidence in the schools is still high, being given as 92 per cent. Taking the more infective stages of the disease, there has been a distinct reduction in the incidence. From 95.5 per cent. in 1907 it has now been reduced to 11.7 per cent., and at the end of a school session it is brought still lower.

Conjunctivitis accounts for the greater number of blind eyes; 76 per cent. are referable to it either directly or indirectly.

THE EDUCATIONAL MENU CARD.

THE Educational Department of Public Health of the city of New York has opened a lunch-room for its employees at head quarters.

The object of this is primarily to provide a wholesome luncheon at cost price; secondarily, to educate the patrons in the subject of food and nutrition by the objective teaching of the lunch-room. The enterprise is being financed by the employees themselves; the city is put to no expense in its maintenance. The menu for the opening day is before us, and it sets forth not only the dishes but the quantity which is served and the calorie and protein value of each portion. Specimen lunches furnishing a balanced ration are given, one at a low and the other at a high cost.

The low cost luncheon is as follows:

	Price.	Quantity.	Calories.	Protein.
				Grams.
Cream of asparagus soup...	2½d.	½ pint	230	7.0
Salade a la Santé	4d.	Average helping	370	2.0
Glass of milk	2d.	7 oz.	160	7.0
Apple pie	2½d.	One-sixth of pie	300	4.0
Whole-wheat bread... ...	—	2 slices	140	5.5
Butter	—	½ oz.	120	—
	11d.	—	1,320	25½

The high cost lunch contained:

	Price.	Quantity.	Calories.	Protein.
				Grams.
Cream of asparagus soup...	2½d.	½ pint	230	7.0
Roast beef	10d.	4 oz., lean	140	30.0
Mashed potatoes	—	Average helping	150	4.0
String beans	2½d.	2 h. tbsp.*	10	0.5
Salade a la Santé	4d.	Average helping	370	2.0
Apple pie	2½d.	One-sixth of pie	300	4.0
Black coffee	1½d.	1 cup	—	—
Sugar	—	2 cubes	60	—
Whole-meal bread	—	2 slices	140	5.5
Butter	—	½ oz.	120	—
	1s. 11d.	—	1,520	53.0

* h. tbsp. = heaped tablespoonful.

The articles of food ready every day and those special for each day are set out with cost, quantities, calories, and protein values, so that the guest can select and calculate the nutritious value of his own lunch. We learn the following facts:

	Quantity.	Calories.	Protein.
			Grams.
Ginger bread	2 oz.	220	3.5
Ice cream	2 h. tbsp.*	190	5.0
Tea or coffee with 2 cubes of sugar and milk	1 cup	80	—
Ditto with sugar and 1 oz. cream ...	,,	160	2.3
Cocoa	,,	180	9.0
Baked apple	1 med. size	130	0.5
Ditto with 1½ oz. cream	—	250	2.0
Whole-wheat bread sandwiches with cheese	1½ oz.	340	16.5
Ditto with ham	,,	280	16.5
Egg (one) and ham	—	370	23.0
Potatoes (fried)	Average helping	120	3.5
Boiled rice	3 h.tbsp.*	330	8.0

The menu card not only gives the guest all this information but affords appropriate mottoes, such as "Since Eve ate apples much depends on dinner" (Byron); and what a subject for conversation it gives! If every hostess would only add the calorie and protein value to her dinner menu card there would be no more trouble in making conversation, and distress for the shy and nervous partner. Discussion as to how we are going to make up our physiological allowance—dare we exceed it and by how many calories? how do the food values compare with those of Mr. Grundy's dinner? is our hostess right in her protein value for the quail? and surely the calorie worth of asparagus is too high for the portion we have been given?

We measure the miles we walk, the temperature of our rooms and bath, the medicine we take, why should not we have the exact measure of the food we eat? The quack pill and salts vendors make their fortunes out of the gross guzzling habits of the nation. Feed up your strength, avoid the slightest exposure to cold—these are tenets held as fast as parts of a religious creed. They lead to digestive disturbances and impoverished health. The metabolism is reduced, excess food is eaten and not utilized, and the bowels become the seat of bacterial fermentations, which lead to chronic intoxication and a host of complaints.

How many clerks, shopmen, etc., have in the last nine months been changed by military service from pale, dyspeptic men, below par, unjoyous, into magnificent healthy soldiers full of the perfect enjoyment of life? This is due to hard physical labour, and exposure to cold and wind, which enormously increases the metabolism and the appetite and favours the complete digestion and utilization of the food. For many sedentary workers the appetite overruns the bodily needs. For these the menu card, with the calorie and protein values set out, would be useful. Not only does the over-eating work much harm to the national health, but the economic waste is enormous. Let us, then, in these scarce and dear times of war, spread the use of the Educational Menu Card.

LARVA MIGRANS, a creeping eruption of the skin, first reported by Robert Lee in 1874 and investigated by Dickinson, Tilbury Fox, and Duckworth, was traced by Sokolow to the *Gastrophilus haemorrhoidalis*, a horse fly. Dr. F. C. Knowles, of the University of Pennsylvania, has demonstrated (*Journ. Amer. Med. Assoc.*, January 15th, 1916) its histologic features and followed up the burrow and the larva in the epidermis. One of the two cases he records occurred in a girl aged 20 months; there were areas of the size of a palm of serpiginous gyrating lines on both nates and on the pubes. Treatment with nitric acid having failed, all three tracts were excised. The larva, however, made a fresh progression four days later at the edge of the excision on the left buttock, and in twenty-four hours advanced 2 in., burrowing down towards the lower edge of the mons veneris on the left side. A second excision was followed by permanent cure. The tracts differed from those seen in scabies. Under the microscope the burrows were explored and at some points the larva was detected. In almost all cases these passages ran in the upper portion of the rete, and the diameter of the burrow varied from 0.25 mm. to 0.75 mm.

British Medical Journal.

SATURDAY, APRIL 22ND, 1916.

THE CONTROL OF VENEREAL DISEASES.

ON April 14th the President of the Local Government Board informed a deputation from the National Council for Combating Venereal Diseases that the Treasury was prepared to provide the necessary grant to carry out the recommendations of the Royal Commission with regard to the provision of facilities for diagnosis and treatment. The grants would cover 75 per cent. of the cost incurred by local authorities. It was not proposed to create special hospitals for the treatment of venereal diseases, as it was felt that treatment would be carried out more efficiently and with less danger of prejudice at the existing general hospitals.

The Royal Commission on Venereal Diseases entertained the hope that benefit would be derived from a wide public knowledge of the dangers of untreated venereal disease and the certainty of a real cure if the treatment of the disease was undertaken at the earliest stage of the infection. The Commission, indeed, laid great stress on its expectation that the report would give this desirable publicity. The hope is in process of realization. In the current issue of the *Edinburgh Review* (April, 1916) is an article which deals with the Report and the evidence given to the Commission in a broad-minded fashion. In quoting from the article we confine our attention to parts which emphasize certain findings of the Commission and certain points as to which there was some disagreement or total silence.

The article sets out with a statement emphasizing the urgency of dealing with these grave evils. Its opening sentence is: "The issue of the final Report of the Royal Commission on Venereal Diseases is an event of national importance, deserving the attention of all well-wishers of humanity, even in the stress and strain of a world-war. It may be doubted whether even this war at its finish will have shortened a larger number of lives and decreased the physical and mental efficiency of a larger number of persons than has venereal diseases during a single generation." Such a statement in such a place may help the nation to realize the urgency of the need for dealing with the evil. The stringent comment of the report on the evils of quack treatment is pointed by a quotation from the evidence of Dr. Johnstone, a medical inspector of the Local Government Board, who stated "that medical men in various parts of the country informed him that they were rarely consulted until the patient had spent some weeks in the hands of a herbalist or chemist, or in trying some advertised cure." Exception was taken by one at least of the Commissioners to the proposal to keep infected patients in Poor Law infirmaries until they are cured. On this the article makes the following comment: "The patients in question are usually inveterate prostitutes who have become diseased to an extent which disqualifies them from plying their unhappy traffic, and who consequently are destitute. Even with the knowledge that they will be detained until well, such women must enter the infirmary; and persons of practical experience appear to regard it as certain that the exercise of powers of compulsory detention would not be likely to have a deterrent effect in preventing these women from accepting treatment. Such 'ins' and 'outs' at present are a serious scourge to the community. In maritime towns, for instance, such women, when still highly infectious, 'take their discharge' when a large ship arrives in port, returning as soon as their horrible business slackens! The amount of mischief thus done is incredible to those who have not come into actual contact with it; and at present there is no effectual remedy for it."

The final paragraphs of the article deal with prophylaxis. The report proper did not mention this matter, but a reference to it appears in an appendix. The article reads: "It is well known that the use of simple measures within one or two hours after exposure to infection will, in most instances, prevent the occurrence of the disease. . . . The Commission carefully refrained from expressing any opinion upon either method of guarding against the disease. The importance of the matter cannot, however, be ignored. Both at home and abroad our soldiers are grievously infected with venereal disease. . . . Short of imprisoning every woman who approaches a military camp and absolutely cancelling all military leave, it is impossible to begin to prevent soldiers from running the risk of venereal infection. Nor would even these impossibly drastic measures touch the case of soldiers living in billets. The seriousness of the matter is fully recognized by the military authorities, and lectures are given on the horrible character of the risks that a man runs in consorting with immoral women, but the results are disappointing. Therefore the question arises whether, in the interests of their health, of the health of their wives and of their unborn children, and also of the military strength of the nation, it is not desirable to give our soldiers the opportunity of guarding themselves against disease. It is not suggested that the soldiers should be in any way encouraged to indulge in irregular intercourse, or that anything should be done which would give them the idea that the military authorities look with tolerance upon irregularities. But the evil is so grave that the case is very strong indeed for putting into the hands of the soldier the means which will enable him to protect himself."

In another part of the article we find the following: "The experience of the world proves conclusively that in no country has the dread of venereal diseases ever prevented the existence of irregular sexual relationships. Few people who are able to look facts in the face can hold the belief that the world will ever reach a stage when the rules of monogamy are strictly and universally observed. But if that stage should ever be reached it is certain that the change will be due to moral causes, not to materialistic fear of specific diseases. Do the people who refuse to 'condone vice' really think that it is justifiable to allow the race to be saturated with syphilis while waiting for an epoch of universal purity?"

One more paragraph we will quote for its bearing on the present difficulties of the country: "Venereal diseases form a scourge which, with the possible exception of tuberculosis and cancer, in time of peace is chief among the Captains of Death and Disease. In war the ravages of venereal diseases form an even more serious calamity. Large numbers of our soldiers are rendered inefficient for considerable periods by these diseases, and this to an extent which seriously handicaps our military position. So far no recent figures as to the amount of these diseases among our troops have been published, but it is well known that the amount is serious, and that in several parts of the

country there are large hospitals which contain no patients except venereal patients."

We have preferred to deal with this important article mainly by way of quotation because we think that by the publication of the report of the Royal Commission the matter has now been put into the hands of the public and of Parliament to find solutions for the problems raised. As to the seriousness of the effects of these diseases there are no two opinions among members of the medical profession, who would probably generally accept the truth of the opinion Sir William Osler expressed on the Commission that "of the killing diseases syphilis comes third or fourth." If to this we added a mental estimate of the number of conceptions prevented by the consequences of gonorrhoea we might be justified in promoting venereal diseases to a worse eminence.

PILIMICTION.

PILIMICTION, or the passage of true hairs in the urine, is a phenomenon of very rare occurrence. It was noted by Hippocrates in his *Aphorisms*, with the erroneous explanation that the hairs were excreted by the kidneys. Galen and many medical writers after his day referred to pilimiction, often adding strange hypotheses or theories to account for the production of the hairs passed. It was not until 1849 that the true explanation was given, by the French surgeon Reyer. He found that the hairs originated in dermoid cysts, and reached the urine by the rupture of such cysts into the bladder. Naturally the other contents of the cysts would enter the bladder, so that teeth, carious teeth, bones, and fragments of other tissues might be found in it; but these do not seem, as a rule, to be passed in the urine by the patients to whom this unusual accident has occurred. Carraro[1] quotes from the literature to show that 56 cases have been recorded in which a dermoid cyst ruptured into the bladder—40 in women, 16 in men. Pilimiction was observed in 27 of these—16 of them women, 11 men; but owing to imperfection in the records considerable doubt exists with regard to the propriety of including 6 of these 27. In 21 of those without pilimiction, hairs were found inside the bladder. The patients varied in age between 2 months and 71 years; the hairs passed might be as much as 6 in. in length. The origin of the dermoid cyst in many of the patients remains wrapped in mystery for want of thorough examination either by laparotomy or obduction. In the case of the female patients, however, there is good reason for believing that the cysts almost always originated in the ovary. Exceptionally the dermoid cysts may have originated in the wall of the bladder itself, which is very rare, or, more probably, in the paravesical tissue and rectovesical ligaments. In any case these cysts grow within the pelvis, and by processes of growth, inflammation, and degeneration become adherent to the adjacent wall of the bladder, and finally rupture and discharge their contents into that organ. Carraro passes lightly over the vexed question of the mode in which such dermoid cysts come into existence. Some, at any rate, appear to be embryonic inclusions, the result of the cutting off of epidermal structures by maldevelopment and their inclusion deep inside the body. Others, particularly those containing mesodermal and endodermal as well as ectodermal tissues, represent fetuses (teratomas or embryomas) that are really abortive twins of the patients unknowingly harbouring them.

[1] N. Carraro, *Il Morgagni*, Milan, 1915, Arch. lvii, 217.

Whatever its origin, the cyst may become infected with bacteria by way of the blood or the lymph stream; it is thought that the gonococcus is often the infecting agent in these cases, but in Werth's patient it was proved to be the *Bacillus typhosus*. Rupture of the inflamed dermoid cyst into the bladder naturally gives rise to cystitis, with its train of local and general symptoms and its disturbance of micturition; a simultaneous rupture into the peritoneal cavity may take place, and even septicaemia or pyaemia may be set on foot. Carraro gives a full account of a case of pilimiction under his own observation. It occurred in an otherwise healthy stout married woman of 40. For a few months before she presented herself at the hospital she had complained of painful and increasingly frequent micturition. She came into hospital with acute fetid cystitis and incontinence of urine; a stone was found in the much-contracted bladder, and was removed under local anaesthesia by suprapubic cystotomy. It was the size of a walnut, and composed of short reddish hairs 1 or 2 cm. long, surrounded and bound together by calcareous matter. The woman had anuria for three days after the operation, and faeces appeared in the purulent urine on the sixth day, but this soon cleared up. A fortnight after the operation short hairs thickly incrusted with lime salts were being passed in the urine, and the cystitis reappeared. Cystoscopy showed that the dermoid tumour opened into the lower surface of the bladder to the left of the middle line. A few weeks later the bladder was opened again under spinal anaesthesia, and the dermoid cyst excised; a month after this second operation the patient was discharged cured. The tumour, 6 cm. long and from 1 to 2 cm. thick, consisted of typical hairy skin and subcutaneous connective tissue, with many vessels and very large sweat glands in it, some of the ducts having developed into hydrocystomas; both dermis and epidermis showed oedema and inflammatory infiltration. Carraro points out that there was nothing in the history of the case to show either whether pilimiction had actually occurred before the patient entered hospital, or how the acute cystitis originally arose; it may have been primary and have set up the infection of the dermoid cyst, or it may have been secondary to infection of the cyst from elsewhere. He believes that the communication between the cyst and the rectum had been established before the patient came to the hospital. He concludes his paper with four pages of advice to surgeons who may in the future be confronted by cases of pilimiction.

THE HORRORS OF WITTENBERG.

IT was to be expected that an attempt would be made by the German Government to nullify the effect of the exposure of the horrors of the Wittenberg prison camp contained in the report issued by the British Foreign Office last week. A semi-official telegram from Berlin says that "the report is a repetition of former charges which were refuted when a committee of American doctors gave expression to their satisfaction at the sanitary and hygienic conditions of the camp." On April 13th Sir Edward Grey said in the House of Commons that, according to a statement of the Prussian Ministry of War issued to the press on February 14th, nearly all the camps in Germany had been visited on behalf of the United States Embassy and reports issued as soon as they were received. The staff of the Embassy had, it was added, been increased by four medical men to enable more frequent visits to be made to the camp. This, it may be presumed, is the "committee" referred to in the German denial.

But, as it is expressly stated that they were not allowed to visit the Wittenberg camp during the period covered by the recent report, the evidence of the American doctors, assuming that its purport is correctly given, cannot be accepted as a refutation of the charges made by the British Committee. We have strong proof of the truth of the charges in a report by Dr. Bert W. Caldwell, Director of the American Red Cross Sanitary Mission to the German prison camps, who, at the request of the United States Ambassador at Berlin, with the official approval of the German Government, made a thorough inspection of the camps at Münster, Wittenberg, Altdam and Guterslöh in November, 1915. His evidence is all the more convincing as his report, which is published in the March number of the *Military Surgeon*, the organ of the Association of Military Surgeons of the United States, is very favourable to the German authorities. Dr. Caldwell found the administration of the prison camps "humane, just, and of high order." But there was one exception. The name of the camp is not given, but there can be no difficulty in identifying it from the following description: "Typhus exanthematicus made its appearance in two or three of the camps, causing frightful morbidity and mortality in one. This regrettable occurrence was due to the inhumanity of the prison commandant, who, when typhus broke out in the barracks among the Russian prisoners, insisted upon the English, French, and other prisoners occupying the same barracks with the infected Russians, until some 800 of the prisoners became infected with the disease, and about 300 of them died. This epidemic, when the commandant was shorn of a part of his authority and effective measures were established within the camp was soon controlled." The epidemic came to an end in July, and Dr. Caldwell's inspection was made in November, when it is admitted that the state of things had greatly improved. But, as we said last week, as long as the care of sick prisoners is left to the tender mercies of a medical officer who has shown himself so inhumane as Oberstabsarzt Dr. Aschenbach we must feel misgivings as to their treatment. Every man of proper feeling will share the indignation expressed by Sir William Milligan in the letter published at p. 606, and we hope that a time will come when fitting punishment will be meted out to a man who has disgraced a profession of mercy in a manner which has excited the abhorrence of the civilized world. We are doubtful, however, whether the wholesale expulsion of Dr. Aschenbach's fellow countrymen from the honorary membership of our societies would be the most dignified or the most effective way of punishment for a man so destitute of decent feeling. Moreover, although German "intellectuals" have cut a sorry figure in the eyes of those of other countries, there is evidence that many members of the profession who have the misfortune to belong to that nationality have shown all the best qualities which are expected in the doctor in their treatment of wounded and sick enemies. In regard to the inspection of prison camps, we cannot help sharing the suspicion expressed by Professor J. A. Morgan that the Germans have hoodwinked the American Ambassador. "They stamp out the horrors in one camp and let him see it; and meanwhile these horrors break out in another camp, which he does not see." Unhappily the British Government, with all the experience of the last twenty months before it, does not seem even now to have learnt how the Germans make war. On April 17th Sir Edward Grey expressed regret that he and his colleagues had underestimated the brutality of our enemies. They had no suspicion of the horrors of the Wittenberg Camp, or of the gross and criminal cowardice of the German medical staff in abandoning their duties to those under their charge. So confiding were they that they did not think of demanding an independent examination of the camp. It is pretty certain that such a demand would have been met with a refusal, for during the prevalence of the epidemic the Germans allowed no kind of communication as to the conditions existing at Wittenberg. There was too much they could not conveniently allow the outside world to know. Sir Edward Grey added that the Government had no reason to suppose that other typhus-infected camps in Germany were treated in the same way. It is deplorable that they should not have informed themselves more fully as to a matter so directly affecting the welfare of British prisoners. The evidence comes from too many sides and is too uniform in purport to be set aside by any semi-official denial. We need only refer to the account of the typhus outbreak at Gardelegen given by Major P. C. Davy and Captain A. J. Brown in the BRITISH MEDICAL JOURNAL of November 20th, 1915, and to Dr. F. Léonetti's record of his experiences during similar epidemics at Cassel and Langensalza, a summary of which was given in the JOURNAL of March 18th, p. 421.

INFANT AND MATERNAL WELFARE.

THE Carnegie United Kingdom Trust proposes to prepare a comprehensive report upon the present position in regard to infant and maternal welfare, with special reference to the provision made or in immediate contemplation in various sanitary areas. To this end a schedule of questions has been drawn up and is being issued to medical officers of health of the larger districts of England and Wales. It has been drafted in a form which, it is hoped, will minimize trouble for each medical officer in preparing the information relating to his district. The schedule is on large paper, with room for the answers, and is divided into seven main sections. In Section A (general condition of the area) it is asked that statistical and other data may be given under a number of heads, including housing accommodation, birth-rate and infant mortality-rate, the diseases most fatal to infants, and maternal mortality. Section B refers to activities of local sanitary authorities and asks for particulars as to the staff of the M.O.H., the administration of maternity benefit and of the Children's Act, and as to the organization of infant-welfare and maternity hygiene under the heads of "ante-natal," "natal," and "post-natal." Section C asks for particulars with regard to voluntary agencies, such as infant welfare centres, schools for mothers, hospital provision, and district nursing associations. Section D (Poor Law) asks for facts as to lying-in accommodation, and Section E (midwives) for particulars as to the relation with the municipality and the municipal staff and with voluntary agencies. Section F inquires how education in mothercraft is dealt with, whether by the education authority or by voluntary agencies, and how it is given to mothers, to young women, to schoolgirls, in school, and at day nurseries. Finally, there is a blank sheet for general observations by the M.O.H. We have endeavoured to give a general notion of the scope of the inquiry, but have not sought to enumerate every heading. The trustees desire to obtain the fullest information, in order that they may be in a position to decide what steps, if any, can be taken by the Carnegie Trust, and generally to assist in the solution of the problems which arise. The forms and all correspondence should be addressed to Dr. E. W. Hope at the offices of the Public Health Department, Municipal Buildings, Liverpool. We have no doubt that, if the inquiry is welcomed by the medical officers of health, as it ought to be, and as we feel sure as a rule it will be, a great deal of useful information will be brought together, and it is certain that under Dr. Hope's supervision it will be analysed in the very best possible manner, and the conclusions to be drawn from it judiciously worked out. The questions as to antenatal organization are full, and this fact is proof of the growing importance attached to this department of preventive medicine. It is asked, for instance, whether any special plan exists in a district for ensuring provision of medical advice for expectant mothers

at, for example, antenatal clinics conducted by gynaecological specialists, by ordinary medical practitioners, or by nurses, and it is also asked whether facilities exist for pathological and bacteriological examinations in relation to ophthalmia neonatorum, syphilis, and abnormalities. Under the heading "natal" there are questions as to the existence of any scheme in operation to provide for medical help in emergencies under the Midwives Act, and what provision is made for nursing cases of puerperal fever at home or in institutions.

THE CAMPAIGN AGAINST VENEREAL DISEASE IN GERMANY.

THE numerous articles on venereal diseases which have recently appeared in the German medical press fall into two groups—those that deal with preventive, social, and legal methods, and those that confine themselves to the purely medical aspects. Dr. F. Schaefer has discussed[1] the possibilities of continuing after the war the drastic regulations introduced on April 1st, 1915, by Hindenburg, who made it an offence in his army, punishable with two to twelve months' imprisonment, for women, whether they were prostitutes or not, who knew they were suffering from venereal disease, to engage in sexual intercourse with civilians or the military. Proof that they had exposed others to this danger was sufficient to ensure a conviction, even though their conduct had not actually led to spread of the disease. Dr. Schaefer expressed the opinion that, though in practice convictions would seldom be secured except when venereal disease had been conveyed, the threat of punishment, even when there was no proof that infection had occurred, would be a powerful deterrent to many women. He suggested that this regulation should be legalized after the war, and extended to include male as well as female offenders. Professor Blaschko has drawn attention[2] to the Danish and Norwegian practice, according to which medical men are prompted to induce their patients to sign a paper acknowledging that they have been informed as to the nature of the disease from which they are suffering, so that they may not afterwards plead ignorance should they convey the disease to others. Professor Blaschko has elaborated the scheme he put forward at the XIIIth International Medical Congress in London. He is not in favour of fines and imprisonment so much as of enforced medical control and treatment. Under the heading, "Is it really quite impossible to render prostitution physically harmless?" Professor Neisser has dealt[3] at considerable length with various reforms he would like to see introduced in the regulation of prostitution and the prevention of venereal disease. Among many other suggestions he advocates more compulsory medical supervision and treatment and less police supervision, which is apt to entail unnecessary hardship. In dealing with the medical aspects of venereal disease Professor Zeissl[4] has urged the early abortive treatment of syphilis by the combined use of salvarsan and mercury. In twenty seven cases he succeeded in aborting primary syphilis completely. In view of the frequency of venereal disease among German soldiers on active service, he anticipates extensive infection of the civilian population when the soldiers are discharged after the war. To prevent this disaster he considers that before any soldier is sent home Wassermann's reaction should be applied, and a bacteriological examination made of any urethral discharge. Only when the absence of venereal disease was established by a medical expert should he be allowed to return home. Evidently Professor Zeissl would insist on compulsory treatment for the soldiers found suffering from venereal disease, but on this point he is not explicit.

[1] *Muench. med. Woch.*, December 7th, 1915.
[2] *Deut. med. Woch.*, January 6th, 1916.
[3] *Ibid.*, No. 47, 1916.
[4] *Berl. klin. Woch.*, January 10th, 1915.

TUNGSTEN.

THERE is considerable fascination in tracing the widening uses to which metals are put in the service of man. Tungsten affords a good example of fresh virtues being discovered in a very old servant. For many years tungsten has been mined in various parts of the world, and the powdered metal was mainly utilized in the processes of steel hardening, more especially for what are known as high-speed tools. The ultimate refining of the metal presents no particular difficulties, yet it appears that almost all the refining has in recent years been done in Germany. Mr. Hughes has recently driven home the lesson to be learnt by any industry which is dependent upon other countries for its necessities, and the criminality of such a procedure for the people of an empire which lacks nothing beneath the sun. Tungsten is a widely distributed element, and occurs chiefly in the ores wolfram or scheelite; to this latter mineral the name tungsten, signifying heavy stone, was given by the Swedes. We gather some interesting data as to the world's output of this material from a recent memoir of the geological survey on tungsten and manganese ores, the first of a series of *Special Reports on the Mineral Resources of Great Britain*. From it we learn that the total output of tungsten ores the year before the war was about 8,000 tons; Australasia, Europe, America, and Asia (Burma and Japan) all contributed, the last named accounting for about one-third of the total output. The quantity mined in England, chiefly in Cornwall, is roughly about 200 tons a year. Some of the new uses found for tungsten may be very briefly mentioned. The discovery of a successful method of welding the metal opened the way to the modern wire filament lamp, for by this process the metal, usually very brittle, is rendered quite ductile. This invention, which was made by Dr. Coolidge, led him to make further investigations, and the happy result was the new x-ray tube which bears his name. The novel features of this tube are not, of course, dependent upon the materials used, but some recent endurance tests on the tube described by Dr. Coolidge show to what a degree the qualities of tungsten contributed to the remarkable results recorded. To cite but one performance, we may note that the tube was allowed to run continuously for forty-two hours at 70,000 volts and a current of 100 milliampères, the heating current through the tungsten spiral only varying from 4.50 to 4.58 ampères. Its very high melting point and high atomic weight render tungsten the metal of choice as the anticathode of x-ray tubes, and the use of it in this connexion is increasing. In common with many other metals the open arc of tungsten is rich in ultra-violet radiation, and it may prove a useful addition to the other sources of this type of radiation which are already at the disposal of the medical profession. It is satisfactory to learn that the world-patents for the welding of tungsten are in the hands of a British firm, the British Thomson-Houston Company, Ltd.

THE HEALTH OF GERMAN EAST AFRICA.

THE German Colonial Office in Berlin published last year medical reports of all the German protectorates for the year 1911–12.[1] The sanitary staff in German East Africa consisted of 44 sanitary officers, 3 Government doctors, 11 sisters, and 68 junior sanitary officers. Thanks to the vaccination during the three previous years of nearly two and a half million persons, that is, about a third of the total population of the colony, only sporadic cases and slight epidemics of small-pox occurred. Plague was imported into the colony through Zanzibar, but was limited to a few cases. Other cases were, however, observed in the interior, which somewhat resembled plague, but their nature was obscure. Towards the end of the year under review plague broke out in a malignant form in one district. The war

[1] *Muench. med. Woch.*, February 1st, 1916.

against rats was carried on by putting a price on their heads, by the employment of rat catchers, and by a liberal use of poison. There was considerable rise in the incidence of malaria, and among Europeans malaria and blackwater fever accounted for a third of all the diseases treated and for a sixth of all the deaths. The sum of 350,000 marks was spent on sleeping sickness. The original plan of concentrating the sufferers in permanent camps had gradually to be abandoned, and efforts were concentrated on disinfecting the infected districts. Atoxyl was found to be the most potent drug, and was curative in about 15 to 20 per cent. The arrest of this disease in the district of Lake Victoria was traced by the medical authorities to the measures they had adopted. About Lake Tanganyika, however, the state of affairs was far less satisfactory. There was no change in the incidence of leprosy, typhoid fever, dysentery, and relapsing fever, but in the northern district small epidemics of cerebro-spinal meningitis occurred. Whooping-cough was also prevalent in some districts, and tuberculosis, which had previously been almost unknown, showed an alarming increase, especially in the coastal towns and commercial stations of the interior. Bilharziosis was prevalent in the southern area. The control of prostitution had failed to reduce the incidence of venereal disease.

A WORTHY MEMORIAL.

EXTENSIVE alterations and additions have been in progress at the Chester Royal Infirmary for some years, and on April 15th Lord Bryce opened an ophthalmic theatre and two adjoining wards, for which tenants on the Hawarden estate and friends had subscribed, as a memorial of the late Lieutenant William Glynne Charles Gladstone, squire of Hawarden, Lord Lieutenant of Flintshire, and M.P. for Kilmarnock Burghs, who was killed in the trenches in France on April 13th, 1915. Lord Bryce said that Mr. Gladstone, as Lord Lieutenant of the county when war broke out, had devoted himself with earnestness to recruiting, and in the course of doing so it was borne in upon him that when he was urging others to come forward to save their country he ought not to stay behind himself. He trained himself to be an officer, went as lieutenant to France, and within a fortnight the end came. "Never," Lord Bryce went on, "was there a time when so many of our best and noblest young men have gone from us, willingly, because they felt it to be their duty, and never was there a time when their parents had shown such an example of uncomplaining patience. Never had England shown herself worthier of the greatest tradition of her greatest days than she had in these last months. An England that could do this was an England worth fighting for. One of the most famous men of antiquity, in pronouncing a funeral oration over his Athenian fellow-citizens who had been killed in war, said: 'When the young men are taken out of the city spring is taken out of the year.'"

ANNUAL CONGRESS OF THE OPHTHALMOLOGICAL SOCIETY.

THE annual congress of the Ophthalmological Society of the United Kingdom, the mother of all ophthalmological societies in the world, will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W., on the last three days of the first week in May. On Thursday, May 4th, the president, Mr. Walter H. Jessop, will give the opening address at 10 a.m., and afterwards various papers will be read. Among them we notice one by Mr. Affleck Greeves, which will contain observations on a series of trephined eyes examined microscopically; another by Mr. Richardson Cross on severe kerato-iritis cured by tuberculin; and a third by Mr. J. B. Story on implantation of fat after enucleation. In the afternoon a discussion will be opened at 2.30, by Mr. Herbert Parsons and Mr. A. L. Whitehead, on foreign bodies in the eye and orbit, with special reference to prognosis and treatment. On Friday morning, May 5th, at 10 a.m., Mr. J. B. Lawford and Mr. S. H. Browning will open a discussion on the treatment of syphilitic eye affections by the newer methods, and in the afternoon there will be a clinical meeting at the Central London Ophthalmic Hospital, Judd Street, W.C., when a number of interesting cases will be demonstrated, including one by Dr. N. Finzi, in which recurrent sarcoma of the orbit was successfully treated by radium. On Saturday morning, May 6th, other papers will be read. During the congress a collection of drawings, pathological specimens, etc., will be on view in the Bowman Library at the Royal Society of Medicine, and members desirous of exhibiting are requested to communicate with Mr. Stephen Mayou, 30, Cavendish Square, W. Members wishing to read papers, show cases, or take part in discussions, are asked to communicate as soon as possible with Mr. Elmore Brewerton, 84, Wimpole Street, W.

Medical Notes in Parliament.

War.

German Treatment of British Prisoners.

ON April 17th Captain Douglas Hall asked a question with regard to the treatment of Private A. C. Tulley, Royal Marines, with ten years' service, who died at Millbank, weighing only 5 stone. The Home Secretary said that there was no record of Private Tulley's weight at the time of his death, but it appeared from his statements that he was confined in the camp at Döberitz, where the men were covered with lice, and that after working in the wet he had no means of drying his clothes and could get no underclothes. In July, 1915, he got rheumatic fever through going on daily fatigue duty, getting wet through, and having no change. He was sent to hospital, and after five weeks was convalescent. He was sent to another camp, Dyrotz, about 7 kilometres from Döberitz. He had to carry all his kit on the march, and broke down and was never well afterwards. A little later he was put into hospital at Döberitz, where he had no treatment at all, and had to depend upon an English prisoner, one of the patients. They had no drugs. When he arrived in this country he was in an advanced stage of consumption and extremely emaciated. He died in hospital a fortnight after his arrival. The medical board which reported upon his condition stated that it was due to exposure, insufficient food and clothing whilst a prisoner in Germany. Tulley himself stated that the conditions in the camp had much improved before he left it, and other reports confirmed this. Improvements seemed to have resulted from the efforts of the American Ambassador. There was no record of any other prisoners of war released from Döberitz camp having died since their return to this country.

In a written reply to Mr. Malcolm, on April 17th, Sir Edward Grey said that the Germans permitted no kind of communication, either by letter or orally, as to the condition of Wittenberg camp during the many months that the camp remain unvisited, owing to the prevalence of typhus, by the American Ambassador at Berlin or by any of his staff. The British Government had no suspicion of the horrors that were going on there, or of the gross and criminal cowardice of the German medical staff in abandoning the duties they owed to those under their charge. Neither our allies—whose prisoners in the camp were far more numerous than ours—nor we demanded independent medical examination of the camp, and on behalf of the Government he could only express profound regret that it had so underestimated the brutality of our enemies. It was only right to add that the Government had no reason to suppose that other typhus infected camps in Germany were treated in the same way.

Steel Helmets.

In reply to Colonel McCalmont, who asked how soon a sufficient number of steel helmets would be available for every soldier whose duty took him into the trenches, Mr. Tennant said, on April 13th, that he had acquainted himself with the state of the supply, but did not propose to inform the House or the enemy about it in

detail. The active resumption of hostilities would not find the troops in the trenches unprovided in this respect. Not only had there been no diminution in the supply, but it was being accelerated. In a written answer to Mr. Annan Bryce, on April 17th, Dr. Addison said that the steel helmets (of which large quantities had already been supplied to the British troops in France and of which adequate supplies were assured) possessed higher protective properties than the French pattern. It was desirable that a uniform design should be adhered to, and it was not considered advisable to place orders in France because it was not known that steel of the requisite standard could be obtained in France; it was most important to maintain the reliance which, he was informed, our troops now placed in the helmets.

Army Medical Service.

On April 12th Mr. McNeill asked whether some of the most eminent specialists in the various branches of surgery had been for a long time during the war employed in field ambulances or otherwise where their special qualifications were wasted; and whether it was proposed to take steps to insure that doctors with special experience in different branches of medicine and surgery who had joined the R.A.M.C. should be utilized to the best advantage. Mr. Tennant said that the supply of efficient operating surgeons in military hospitals at home and abroad was fully adequate. It was necessary that a certain number of younger surgeons should be employed with field ambulances. Every effort was made to use the services of medical men joining the R.A.M.C. for such duties as their special acquirements and professional limitations best fitted them, but it was impossible to allow each individual to select the work which he considered himself most competent to undertake. Mr. McNeill suggested that Mr. Tennant had not observed that his question referred to eminent specialists and not to younger officers, and inquired whether Mr. Tennant was prepared to deny that eminent specialists in surgery had been employed in very inferior work. Mr. Tennant said that he was quite prepared to believe that eminent specialists had occasionally, when they were employed abroad, to do somewhat trivial duties. That must be part of every campaign; whereupon Mr. McNeill exclaimed "Not at all," but Mr. Tennant said that he did not agree. He thought it was inevitable in the ordinary routine of carrying on a great campaign that it might fall to the lot of the most eminent to do the most trivial duties. The army retained the services of these most eminent specialists, and if they had to employ them in that way occasionally he was very sorry, but it was part and parcel of the difficulty of carrying on a great campaign. Mr. McNeill next asked whether, with a view to economizing the supply of medical men available for the army, steps would be taken to provide that general practitioners should be, so far as possible, employed in part-time work in hospitals, or in looking after the health of troops quartered in the neighbourhoods where such practitioners lived, so as to release for duty men who had volunteered for whole-time service, thus obviating the necessity of asking an unnecessary number of men to take commissions in the R.A.M.C., whereby the supply of doctors for the civil population at home was in danger of being unduly depleted. Mr. Tennant said, in reply, that general practitioners were already being largely employed in local military work. Every effort was made to protect the needs of the civil population for adequate medical attendance, and the War Office was receiving in this connexion the advice and assistance of representatives of the civil medical profession and of the various Government departments concerned.

Pensions and Grants: Temporary Rank.

Mr. Tennant stated, on April 13th, that in the case of an officer having permanent rank and higher temporary rank, his widow got the benefit of the temporary rank should the officer die from wounds.

Weekly Rest for Munition Workers.—In reply to a question by Mr. Pratt, on April 17th, Dr. Addison said that Mr. Lloyd George was keenly alive to the importance of securing to munition workers an unbroken rest period of not less than twenty-four hours weekly. A circular recommending this weekly rest period (preferably on Sundays) had been sent out on December 7th, 1915, to all controlled establishments. This was followed by an inquiry addressed to each establishment, and a committee was appointed to deal systematically with the subject. There were many practical difficulties in the way of securing entire abolition of Sunday labour, but substantial progress had been made, and out of 2,383 firms from whom particulars had been obtained, 1,440 were not now employing any Sunday labour. Of the firms which worked on Sundays, 60 had notified the department that all workers were provided with a rest period of at least continuously twenty-four hours each week. Constant and pressing attention was being given to the matter, and it was hoped that the number of firms employing no Sunday labour would shortly be largely increased.

Massage in Military Hospitals.—In reply to Major Chapple, Mr. Tennant, on April 12th, said that specialists in massage who held colonial qualifications were not being denied employment in military hospitals because they did not hold an Almeric Paget diploma; in fact, he was informed that there was no such thing as an Almeric Paget diploma. Six months' training was required before a masseuse could be accepted, unless her education took place some time ago. This was the rule for the qualification of masseuses in civil life.

Verandahs for Consumption.—On April 13th Major Astor asked how many military and Territorial hospitals had verandahs for the purpose, *inter alia*, of providing treatment for consumptive soldiers, and approximately the number of soldiers who could be accommodated and treated on these verandahs. Mr. Tennant replied that soldiers suffering from pulmonary tuberculosis were discharged from the service and admitted to sanatoriums under arrangements made with the Insurance Commissioners and the Local Government Board. It was true that a special type of hut had been designed with verandahs for the treatment of some cases, though not necessarily for consumptive patients. No data as to the number of patients who could be accommodated in existing verandahs were available.

Duration of Treatment in Military Hospitals.—In reply to Major Astor, Mr. Tennant said on April 12th that hospital treatment was continued until a cure was effected, or until it was obvious that the soldier would not be medically fit to remain in the service. In no circumstances was a soldier discharged from hospital (except to special institutions) unless he was able to leave without detriment to his health.

Hernia.—In reply to Mr. Jowett, Mr. Tennant stated, on April 12th, that carefully selected men suffering from slight hernia, if properly fitted with a truss, might be passed for general service. It was not anticipated that active service would incapacitate or harm these men.

Infant Welfare.—On April 13th Mr. King asked the President of the Local Government Board if he would issue instructions to local authorities that an expenditure not exceeding ½d. in the £ might be judiciously undertaken, even in war time, on promoting infant welfare and combating infant mortality; and whether the Government was prepared to supplement such expenditure when efficiently carried out on approved lines. Mr. Long replied that he had already encouraged local authorities to undertake work for the promotion of infant welfare, and Parliament had been asked to vote money for furthering their efforts. He did not think that anything could be gained by an instruction of the kind suggested. Mr. King then asked whether it could be suggested to local authorities that health visitors should be, as far as possible, employed by local authorities in the proportion of not less than two for every 1,000 births; and whether provision was being made for the 1,600 health visitors who, under such arrangements, would be necessary to carry through a national policy of preserving infant life. Mr. Long said that the suggestion was included in a memorandum which had been circulated to all the medical officers of health. In a written answer to Mr. King, on April 17th, the President of the Local Government Board stated that the amount of the grant distributed in aid of maternity and child welfare work in 1915–16 to towns with a population over 250,000, including London, was £15,404 to local authorities and £4,809 to voluntary agencies. Grants amounting to £351 were paid to rural district councils, and a great deal of the sums of £6,130 paid to county councils and £2,475 paid to voluntary agencies in counties were for the benefit of rural areas. Grants were paid in 1915-16 to 308 local authorities in respect of expenditure on schemes for maternity and infant welfare incurred in the financial year ended March 31st, 1915. Since that date several new schemes and additions to existing schemes had been approved, but the actual number was not readily available.

MR. ARTHUR DU CROS, M.P. for Hastings, has generously promised a gift of £7,000 to the Extension Fund of the London (Royal Free Hospital) School of Medicine for Women, thus completing the £30,000 for which appeal was made.

THE WAR.

ARMOUR.

(From a Correspondent in Northern France.)

IT must be at least ten months since the French first began to use helmets, and quite six since the appearance of a *poilu* in a helmet ceased to excite any attention, even at places far distant from the front. It is, in fact, rather the other way. The majority of all French soldiers seem now to wear helmets, the chief exception being certain classes of men rarely if ever employed in the fighting line, and those belonging to regiments provided with a cap which is a badge of national import. Of the latter the Chasseurs d'Afrique, who wear a kind of high, straight-sided, woolly fez, are a good example.

The helmet is made of thin steel enamelled a dull blue, and presents an outline which suits the majority of French faces. It is surprisingly light, and makes quite a comfortable headdress. That this is the case may be concluded not only from what the men themselves say, but also from the fact that they do not hasten to take off their helmets when sitting about off duty in cafés and elsewhere.

Among British troops the use of helmets has only recently become other than tentative, and it is still mainly at certain parts of the line that they are to be seen in any considerable number. It has been arranged now to issue them wholesale as rapidly as possible, but even when this has been done it seems likely that the British helmet will, like trench boots, remain for the most part a front line article of attire. It lacks the grace of the French helmet, and is too heavy to be willingly worn on all occasions.

On the other hand, the British helmet is considered to be better designed to meet its direct purpose than is the French; it has a wide downward sloping brim, and thus protects the side and back of the neck and the temples and upper part of the face as well as the top and sides of the head.

This breadth of brim makes the crown look shallower than that of the French helmet, but a more real difference is that the British helmet has a smooth round top, while the crown of the French presents a prominent ridge tapering centrally backwards. This ridge was initially intended to strengthen the helmet, but being hollow and open at one end it also provides a means of ventilating its interior. In addition, it adds to the headdress a style that the English helmet lacks. But it is open to question whether these advantages are not fully outweighed by the fact that a fragment which would glance harmlessly off the smooth round British crown, might be stopped by this ridge on the French helmet, and inflict on the wearer a stunning jar, if not worse.

Unlike the French helmet, the British recalls nothing ever seen in collections of the armour worn in early European warfare. It does, however, bring to mind the pith hats worn by civilians in certain parts of India, and resembles these all the more closely because like them it does not fit close. It stands away from the head about one third of an inch all round, the weight being borne by a padded leather band fixed to the inner side of the surrounding steel by a series of indiarubber buffers, each about the thickness of a lead pencil, and about 1 in. long. This detail of construction constitutes perhaps the most important difference between the British and French helmets. The buffers are capable of diffusing and neutralizing the force of a blow, which, falling on the closely-fitting French helmet, would be conducted direct to the brain-pan.

The heaviness of the British helmet is a drawback, and it is possible that its protective effect would be increased by lowering the brim still further, so as to guard against bomb fragments or other missiles rising upwards from a point within a yard or two of the wearer, but there is already clear evidence that its introduction is a step of great value.

On the basis of the experience of some recent wars head wounds have been written down as accounting for 15 per cent. of all casualties, but data obtained a month or two ago by the medical authorities out here suggest that in trench fights, at any rate, the numerical importance of head wounds really is considerably greater. The figures indicated, in fact, that even when cases surviving long enough to reach the casualty clearing stations are alone taken into account the proportion of wounds of the head, neck, and face to all wounds must be in the neighbourhood of 25 per cent.

Consequently there can be no doubt of the military value of any measure proved to be capable of reducing that ratio materially without interfering with the fighting capacity of the men.

One of the measures tentatively adopted has been the use of helmets, and its efficacy has been put beyond doubt by some other figures that the medical authorities secured in connexion with a fight of some magnitude about the beginning of March, when the British troops engaged were wearing helmets. All the cases admitted at one particular casualty clearing station were analysed, and the resulting figures show that the number of penetrating gunshot wounds of the head was equal to less than ½ per cent., while the total number of fractures of the skull was well under 1 per cent. of all injuries.

The number of casualties on which these percentages are calculated was in the neighbourhood of 1,000—a total sufficiently large to exclude the inference that the paucity of fractures of the skull was merely an accidental circumstance.

Furthermore, there was the direct evidence supplied by the helmets of a number of men who had been struck on the head by missiles of various kinds, but who had nevertheless sustained no injury more serious than a scalp wound. Indeed, some men whose helmets had been dented or pierced or broken were not even aware they had been struck on the head. It was clear, in short, that though the helmets were by no means bullet-proof, they commonly offered such resistance that a missile which succeeded in penetrating them thereby lost most of its force.

The success of these helmets seems to open up the question whether other armour formerly used could be usefully reintroduced. To settle this it must first be decided how much additional weight an average soldier can carry without materially lessening his activity, and what part of the body other than the head most requires protection. In this connexion it is to be remembered that a missile which anywhere else in the body or limbs would produce nothing more than an unimportant flesh wound might easily bring about a rapidly fatal result if it struck a man anywhere between the xiphoid cartilage and the pubes.

EYE INJURIES AND BLINDNESS IN THE GERMAN ARMY.

Eye Injuries and Diseases.

DR. W. UHTHOFF, consulting ophthalmologist to the 6th German Army Corps,[1] has analysed the statistics of about 600 eye casualties in a reserve hospital to which he was attached as consulting ophthalmologist. The proportion of non-traumatic to traumatic casualties was as 1 to 1.7. The most common of the inflammatory lesions of the cornea was keratitis dendritica—a herpetic condition; it constituted 25 per cent. of all the inflammatory diseases of the cornea, and was attributed to the strain and exhaustion of war. Though these patients remained long under treatment, the ultimate results were usually good; in some cases ordinary treatment was supplemented by superficial cauterization of the diseased cornea. In few cases was the disease apparently due to traumatism. Ulcus serpens was observed only in about 1 per cent., and the relative rarity of this disease was, no doubt, due to the soldiers being in the prime of life, and free from such complaints at the time of mobilization. Another disease found to be unexpectedly rare was gonorrhoeal conjunctivitis, only one case of which came under Dr. Uhthoff's care. Yet, of other gonorrhoeal complications there was an abundance in the neighbourhood. Trachoma accounted for only 5 per cent. of the 600 cases, although the territory (Russia and Galicia) from which Dr. Uhthoff drew his patients was supposed to be extensively infected with this disease; from the amount of scarring present in most cases it was judged that the condition must have been of old standing. This relative rarity of trachoma was also noted by Dr. Uhthoff's colleagues, and he attributes it largely to the high standard of efficiency in the Army Medical Service. Iritis, which constituted about 8 per cent. of all the non-traumatic

[1] *Berliner klinische Wochenschrift*, January 3rd, 1916.

diseases of the eye, was due to syphilis in every third case, to rheumatism in every third case, and to unknown factors in the remaining third. Cases of nyctalopia represented about 3 per cent. of the non-traumatic diseases of the eye; they could also be grouped in three equally large classes: nyctalopia due to organic disease of the retina, and hereditary and idiopathic nyctalopia. There were 252 cases of direct injury to the eye, and the sight of one eye was totally lost in 46 per cent. The proportion of total blindness to blindness on one side only was as 1 to 10.

Care of Blind Soldiers.

Dr. Uhthoff has dealt with the care and education of blinded soldiers in another article.[2] He expressed the opinion that the wisest and ultimately the most humane course was to keep them for a time in skilled hands and in surroundings calculated to stimulate them to build up a new mode of life which would give them occupation and relative financial independence. He thought it probable that the institutions established before the war would be able to cope with the demands of the army by a system of extension if every district undertook the care of its own men. He insisted that it would be folly to squander large sums, voluntarily subscribed, on new palatial residences, when so much more could be done by leaving the matter in the hands of district institutions already familiar with the education of the blind. He also objected strongly to the slipshod management of homes for the blind by amateurs incapable of carrying out a systematic course of education. It was all very well for these philanthropists to pamper blinded soldiers with concerts, lectures, and other festivities, but the time would come, after the war, when enthusiasm for the blind would die out, leaving them dependent on others' efforts for amusement and occupation. Dr. Uhthoff considered it inadvisable to educate blinded officers together with their subordinates; and as the pensions for officers were as much as eight times as large as those given to privates, the former were not so dependent on education in an institution as privates. In the case of married privates, the best plan would be for their homes to be near an institution in which they could benefit from systematic teaching while living at home. Dr. Uhthoff touched on the subject of the marriage of blinded soldiers by patriotic, tender-hearted women with great sympathy, and he also urged on his audience the need for providing the blind with large Braille libraries.

[2] *Berl. klin. Woch.*, January 24th.

CASUALTIES IN THE MEDICAL SERVICES.

Army.

Died on Service.

Lieutenant-Colonel Cedric Barkley Prall, Bengal Medical Service, died at Mhow, Central India, on April 5th. He was the youngest son of the late Richard Prall, town clerk of Rochester, born on March 8th, 1870, was educated at St. Thomas's Hospital, and qualified as M.R.C.S. and L.R.C.P.Lond. in 1892. Entering the I.M.S. as surgeon-lieutenant on January 30th, 1893, he became surgeon-captain on January 30th, 1896, major on January 30th, 1905, and lieutenant-colonel on January 30th, 1913. He served on the north-west frontier of India in the campaign of 1897–98, when he was present in the operations at the Samana range and in the Kurram Valley during August and September, 1897, and in the defence of Fort Gulistan, being mentioned in dispatches in G.C.O. No. 1417 of 1897; also in the Tirah campaign of the same years, when he took part in the actions of Chagru Kotal and of the Sampagha and Arhanga passes, the reconnaissance of the Saran Sar and action of November 9th, 1897, the operations in the Waran Valley and action of November 16th, in the operations at and around Dwatoi and action of November 24th, and in the operations in the Bara Valley, December 7th to 14th, 1897, receiving the frontier medal with three clasps.

Major Ernest Brice, R.A.M.C.(T.F.), died at Swansea on April 5th. He was educated at Mason College, Birmingham, and took the Scottish triple qualification in 1896. After serving for some time as a medical inspector of schools he went into practice at Swansea, where he was medical officer and public vaccinator of No. 5 district, Swansea Union. He was an examiner, lecturer, and honorary life member of the St. John Ambulance Association, also of the British Red Cross Society, medical referee to several insurance companies, and honorary secretary of the Swansea Medical Society. On December 25th, 1911, he took a commission as captain in the 3rd Welsh Field Ambulance, was promoted to major last year, and was in command of the 3/3rd Welsh Field Ambulance.

Lieutenant John James Mackintosh, R.A.M.C., has died of gastritis at the age of 31. He was the eldest son of the late Mr. Donald Mackintosh of Stornoway and Mrs. Mackintosh of Inverness. He received his medical education at the University of Glasgow, and took the M.B., Ch.B. in 1908. When war was declared he was in practice in Johannesburg, Africa, and served with General Botha's forces in the South-West African campaign. He subsequently returned to this country and received a commission in the R.A.M.C.

Died of Wounds.

Lieutenant Malcolm Edward Ball, R.A.M.C., is reported as having died of wounds on April 10th. He was the fourth son of Edward Ball of Lewisham Hill, Blackheath, was educated at Guy's, and took the M.R.C.S. and L.R.C.P.Lond. in 1908 and the M.B. and B.S.Lond. in 1909. After filling the posts of clinical assistant, assistant house-surgeon, out-patient officer, and house-physician at Guy's he went into practice at Emsworth, in Hants, where he was honorary medical officer of the Emsworth Victoria Cottage Hospital and surgeon to the Havant Red Cross Hospital. He joined the army as a temporary lieutenant in September last.

Wounded.

Captain C. R. Woodruff, R.A.M.C.(T.F.).
Captain H. W. Greig, R.A.M.C.(T.F.).
Captain J. M. McKerchar, R.A.M.C., Special Reserve.
Captain G. J. Bowen, R.A.M.C. (temporary).
Lieutenant J. Coutts, R.A.M.C. (temporary).
Lieutenant W. G. Macdonald, R.A.M.C. (temporary).
Lieutenant J. M. Mackenzie, R.A.M.C. (temporary).
Lieutenant M. G. Pettigrew, R.A.M.C. (temporary.)
Lieutenant R. R. Pirrie, R.A.M.C. (temporary).
Lieutenant N. McCall Smith, R.A.M.C. (temporary).

Deaths among Sons of Medical Men.

Dobie, William Murray, Lieutenant Royal West Kent Regiment, son of Dr. Herbert Dobie, of Chester, killed in action on April 9th, aged 19. He was educated at Marlborough and at Caius College, Cambridge, got a commission on October 3rd, 1914, and had been at the front since last May.

Dobson, Harold Pierce, Captain Worcestershire Regiment, third son of Mr. Nelson C. Dobson, F.R.C.S., of Clifton, reported killed in the casualty list published on April 15th, aged 34. He got his commission in 1903, served in Ireland, Ceylon, South Africa, and India, was for three years adjutant of the second battalion, and for three years adjutant of the Simla Volunteers, becoming captain on September 22nd, 1914. He married in India the eldest daughter of Colonel Hore. His brother, Major M. C. Dobson, was killed at Loos last September.

Gross, Geoffrey Yates, Captain Royal West Kent Regiment, second son of the late Charles Gross, F.R.C.S., killed in action on April 9th. He was educated at Clifton College and at Oxford, and joined the army as second lieutenant on August 15th, 1914, became lieutenant on March 23rd, 1915, and captain last December.

Powell, Scott, Captain Royal Welsh Fusiliers, youngest son of Sir Richard Douglas Powell, K.C.V.O., M.D., died of wounds on April 4th, aged 30. He was educated at Charterhouse and at Christ Church College, Oxford, where he took the B.A., and was admitted a solicitor in 1912. He joined the Inns of Court O.T.C. before the beginning of the war, got a commission on August 22nd, 1914, and was promoted to captain on January 15th, 1915. He had served in Gallipoli from June till the end, and took part in the withdrawal from both Anzac and Cape Helles.

Nichol, John, Lieutenant Royal Scots Fusiliers, and Flying Officer, Royal Flying Corps, second son of Dr. Nichol of Margate, accidentally killed while flying on April 5th, aged 22. He was educated at Charterhouse, got his first commission in 1912, and joined his regiment at Pretoria. He was promoted to lieutenant on November 12th, 1914, served at the front from February to October, 1915, and then went through the training for the Flying Corps, qualifying as flying officer in January last.

NOTES.

Honours.

The King has appointed the undermentioned medical officers to the Orders stated in recognition of their devotion to duty at the camp at Wittenberg, Germany, during the typhus epidemic which prevailed there from February to June, 1915:

C.M.G.—Major Harold Edgar Priestley, R.A.M.C.

D.S.O.—Captain Alan Cunliffe Vidal, R.A.M.C.; Temporary Captain James La Fayette Lauder, R.A.M.C.

The President of the Scottish Women's Hospitals for Foreign Services has received intimation that the Crown Prince of Serbia, during his recent visit to London, had bestowed decorations upon the chiefs of the units who stayed behind with the wounded Serbian soldiers in Serbia, including the following:

Order of the White Eagle, Fifth Class: Dr. Elsie Inglis.

Order of Saint Sava, Third Class: Dr. A. Hutchison and Dr. Holloway.

Various grades of the latter order are bestowed upon the president, the treasurer, and chairmen of various committees.

Dr. E. Inglis, upon whom the Order of Saint Sava, Third Class, was bestowed during her work in Serbia, is the first woman decorated with the Order of the White Eagle.

The *London Gazette* of April 15th announces the grant of a number of decorations and brevet promotions, all dated January 1st. Among them were the following medical officers:

C.B.—Colonel H. M. Adamson, A.M.S., Lieutenant-Colonel J. F. Donegan, R.A.M.C.

D.S.O.—Captain P. B. Bharucha, I.M.S.

Military Cross.—Captain R. C. Clifford, I.M.S., Captain F. A. Robinson, R.A.M.C., Lieutenant (temporary) F. T. Simpson, R.A.M.C.

Brevet-Colonel.—Lieutenant-Colonel E. Jennings, I.M.S.

Brevet Lieutenant-Colonel.—Major S. Anderson, I.M.S.

The War Office announced on April 15th the grant of 11 D.S.O.'s, 37 Military Crosses, and 138 Distinguished Conduct Medals for gallantry and devotion to duty in the field. Among the recipients are three men of the R.A.M.C.: Sergeant H. Langley, 38th Field Ambulance, and Privates S. Mackenna and S. A. Smith, both of the 37th Field Ambulance.

Ireland.

OWING to the large number of children unvaccinated in the Athy Union, the guardians decided last week to direct the officials to issue summonses against a number of the parents.

The Local Government Board have, after a long correspondence, yielded to the wishes of the Swinford Board of Guardians and sanctioned the temporary appointment of Dr. Sweeney as medical officer of the Charlestown dispensary district.

ROYAL VICTORIA HOSPITAL, BELFAST.

At the annual meeting of this institution, held in the Central Hall of the King Edward Memorial Building of the hospital, the president, Lady Pirrie, occupied the chair, and there was a large attendance. The finances are in a sound condition, although the excess of expenditure over receipts amounted to £2,157, owing to the increased cost of supplies and to the opening of the unused wards and of the Memorial Hall. Mr. R. J. Johnstone, F.R.C.S.Eng., honorary secretary of the medical and surgical staff, proposed the adoption of its report. A number of the full and of the auxiliary staff, he said, were serving in either East or West; the staff, therefore, was short-handed, and he desired to express gratitude to those medical men who had filled to a very large extent the places of those of the staff who were away. During the year 2,404 surgical and 785 medical cases had been admitted and 1,593 operations had been performed. Dr. W. Calwell seconded, and the motion was carried.

Scotland.

THE LATE SIR ALEXANDER SIMPSON.

AT the meeting of the managers of the Edinburgh Royal Infirmary on April 10th Dr. MacGillivray, the convener of the medical managers' committee, said that Sir Alexander Simpson's distinguished career, and the worthy manner in which he maintained the reputation of the name of Simpson in the Edinburgh medical school had been expressed in the appreciation presented to the board on his retirement from active work in the infirmary in 1905. It remained for the managers to convey to his family an expression of their sorrow and sympathy with them in the sudden loss they had sustained. Sir Alexander Simpson has by his will left the museum of his uncle, Sir James Y. Simpson, to the University. He gave his own library and his uncle's to the Royal College of Physicians.

England and Wales.

AT the annual meeting of the County of London Branch of the British Red Cross Society on April 13th, Mr. Martin Holland, C.B., who was in the chair, said that sixteen V.A.D. hospitals (soon to be increased to twenty-three), with 600 beds, had been established by the branch since November, 1914, and the thanks of the meeting were accorded to the various medical officers who had given their services to the hospitals. Colonel James Cantlie, F.R.C.S., vigorously defended his action in organizing emergency classes for first-aid immediately on the outbreak of the war. He drew a sharp distinction between Red Cross work and hospital work. The place for Red Cross work, he said, was along the lines of communications, and not in the hospitals.

In a leading article published last August we referred to the scheme for the educative convalescence of crippled soldiers, initiated last midsummer in the Princess Louise Military Wards at Chailey. In this Sussex village there is established a centre for the training of crippled children in various handicrafts, and the new idea has been to introduce wounded soldiers into this environment, so that, under the influence of children similarly afflicted, the men may learn more readily to accustom themselves to their privations, and to engage in such tasks as bookbinding, carpentry, and basket work. At a meeting at Carpenters' Hall, London, to further the repetition of the experiment this year, Mrs. G. T. Kimmins showed a large number of lantern slides of the work at Chailey, and Bishop Forrest Browne made an appeal for funds. He said that to equip the schools for this enterprise anything from £2,000 to £4,000 would be needed, but any building put up, after serving its immediate purpose, would remain for the benefit of crippled children, who would receive more intelligent and scientific care than had been the case in the past. Some gratifying donations were announced.

Correspondence.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—In his valuable paper under the above title Sir James Barr deals with a subject of considerable importance—namely, the part played by morbid blood plasma in the causation of functional nervous disorders. His observations suggest that many of the symptoms of the war neuroses, hitherto thought to be immediately due to injury of the nervous system, may be the result rather of the action upon the nervous system of a morbid condition of the blood consequent upon the stress and strain of active warfare.

That the blood can be morbidly affected through the nervous system there can be no doubt, and it is equally certain that a morbid blood plasma is capable of giving rise to wellnigh every known variety of functional nervous disturbance, from the mildest neurasthenia to the most virulent type of insanity. Consider the manifold nervous symptoms which arise from the various toxaemias, such as those due to drugs, defective digestion (in the widest sense), pathogenic bacteria, and metabolic disorders, such as diabetes, nephritis, and malignant jaundice. Consider, again, the profound nervous disturbances which result from abnormalities as regards hormonic activity. Now we know that the hormonic tissues (for example, the thyroid and adrenal glands) are highly susceptible to nervous influence, and I have no doubt that Sir James Barr is correct in attributing many of the phenomena of the war neuroses to disordered activity of these tissues. Certain of the symptoms of Graves's disease (for example, tachycardia, tremor, sweating, extreme nervous agitation) are common among soldiers invalided from the front—a fact which has been commented upon by more than one French physician; but I am not aware that the possibility of these symptoms actually being hormonic in origin has been previously suggested. Sir James Barr's observation on the condition of the thyroid in soldiers suffering from irritable heart is of great interest in this connexion.

We meet with all sorts of anomalous vasomotor and secretory disturbances in soldiers suffering from war neuroses, and it seems highly probable that many of these are the result of disordered hormonic function.—I am, etc.,

London, W., April 16th. HARRY CAMPBELL.

SIR,—The paper of Sir James Barr is very interesting and useful; but without the fact that thyroidism itself is due to a toxic cause or to some deficiency in diet, hardly appears to cover the whole ground.

For instance, whilst a civil surgeon in the South African war, I was aware that men were occasionally in the habit of chewing cordite, with the idea of getting a rest in hospital owing to weak cardiac action. Lately I saw a pronounced case of irregular heart action due—according to the man's own opinion—to his being an habitual taker of small doses of cocaine. I have seen two similar cases due to the action of veronal taken in large doses. Tobacco is admittedly a common cause. Tea is also a cause, which any practitioner who has treated charwomen and washerwomen in faints will probably have guessed. In scurvy and beri-beri heart failure is the usual cause of a fatal ending; and in my opinion a good deal of the excessive mortality amongst artificially fed children is due to a minor degree of scurvy causing the heart and nervous systems to be unable to withstand the strain of minor infantile ailments.

Now soldiers are exposed to nitrite fumes, they smoke too much, their diet consists for long periods principally of preserved meat, white bread, and biscuits, and tea taken from early morning until late at night, owing to water, unboiled, being taboo.

I have used calcium for many years, probably because I was formerly house-physician to Sir James Barr, and can witness to its efficacy. The breakfast tea should be discontinued, as well as smoking before lunch, and all inhaling particularly. Brown bread and oatmeal porridge with fruit and vegetables materially assist.—I am, etc.,

Wallasey, April 16th. F. WILLIAM INMAN, M.B.

THE HORRORS OF WITTENBERG CAMP.

SIR,—The horrible and ghastly tale of the inhuman conduct of Dr. Aschenbach, the medical officer in charge of the Wittenberg prisoners of war camp, as reported by the Government Committee on the treatment by the enemy of British prisoners of war, is only one more illustration of the infamous effects of German Kultur.

I doubt if the medical profession of any country in the world could produce such a specimen of depravity as this inhuman beast, to whom the Kaiser has presented that, to our minds, symbol of infamy, the Iron Cross, as a reward for the perpetration of systematized murder on a colossal scale.

It is time, Sir, that the medical profession in this country raised its voice in abhorrence and in condemnation of the conduct of a confrère who, trusted with the care of suffering and defenceless prisoners of war, so betrays his trust as to be capable of such cowardly and devilish barbarity as this traitor to our profession.

Man's inhumanity to man
Makes countless thousands mourn.

To mark the feelings of indignation and disgust shared by the medical profession of the British Empire I beg to suggest that the councils of the various sections of the Royal Society of Medicine forthwith delete from their list of honorary or corresponding members the name of any German physician, surgeon, or specialist who may have, in our hour of illusion and delusion, been accorded this honour.

I may say that I have given notice of a resolution on these lines to the secretary of the Laryngological Section and of the Otological Section of the Royal Society of Medicine for discussion at the first possible opportunity.—I am, etc.,

Manchester, April 17th. WILLIAM MILLIGAN.

PERNICIOUS ANAEMIA AND ERYTHRAEMIA.

SIR,—The treatment of pernicious anaemia by injection of polycythaemic blood, recorded by Dr. O. Leyton in the BRITISH MEDICAL JOURNAL for April 1st, 1916, p. 484, had also been tried, as Dr. Leyton thought it might have been, some years previously. Walter recorded a case of pernicious anaemia treated by injections of polycythaemic blood[1] in which the effect on the patient's blood state, etc., was satisfactory—that is to say, a very great improvement followed the injections. I do not know whether details as to relapses were published later. I am inclined to think that similar therapeutic trials have been made both in Germany and France. Treatment by normal blood (intramuscular injections, etc.) has, of course, been tried repeatedly.—I am, etc.,

London, W., April 15th. F. PARKES WEBER.

Obituary.

JOHN KENT SPENDER, M.D.LOND.,

LATE PHYSICIAN, ROYAL MINERAL WATER HOSPITAL, BATH.

DR. J. K. SPENDER, who died on April 14th, was the last of the generation of physicians who laid the foundation of modern Bath as a health resort.

He was the son of the late Mr. J. C. Spender, who practised at 36, Gay Street. Dr. Spender's medical education began there in a little dissecting-room at the bottom of the garden, and he also attended, in 1846, a private institution for diseases of the chest in Chatham Row, Bath, where the late Dr. James Watson, of 13, The Circus, the Nestor of the local profession, taught him the elements of auscultation. On October 1st, 1848, he entered as a student at King's College, London, took the diplomas of M.R.C.S. and L.S.A. in 1852, and later on, in 1868, while in the midst of a busy practice, graduated M.D.Lond. On returning to Bath, he joined his father, on April 21st, 1852, residing at 37, Gay Street. On January 1st of the following year he was elected a member of the local Branch of the British Medical Association, of which he lived to be the oldest member. He had also, we believe, been, although it has not been possible definitely to verify the fact, a member of the Association for a longer period than any other person. He was always an energetic supporter of and regular attendant at the Bath and Bristol meetings. In describing the annual meeting of 1854 he says: "It was held in a small room at the Castle Hotel, and we sat down afterwards to dinner, about 10 all told. The late Dr. Wm. Davies, of 10, Gay Street, presided, and we were a merry lot." It was in consequence of Dr. Spender's efforts that the annual meeting of the Association was held in Bath in the year 1878. The benefit derived by the city as a health resort is very generally recognized. In 1882 Dr. Spender was appointed President of the Branch.

As physician to the Mineral Water Hospital he devoted much time to the institution. His special interest in rheumatoid arthritis is shown in the number of contributions to the press on the origin and etiology of that congeries of diseases. By his knowledge of his subject, clearly expressed in the simplest words, Spender was known to a wide circle. He was one of the earliest investigators to recognize some of the premonitory and initial symptoms of that disease, and his views have been amply ratified by subsequent writers. The "affinities," as he called them, existing between rheumatoid arthritis and Raynaud's disease, such as sweating, were pointed out by him, and also the analogies, such as the rapid pulse, to exophthalmic goitre, a disease, by the way, which was first described by Parry, a Bath physician.

Early in his career Spender made for himself a high position in medical literature, and his contributions were uninterrupted from 1854 to 1894. He never wrote for writing's sake, but there was always something new and something interesting in his articles and in his books. *Therapeutic Means for the Relief of Pain*, which gained for him the Fothergill Gold Medal in 1874, was a masterly summary, which, even in these days of synthetic drugs, is well worthy of study. He himself accounted for his success in literature by the fact that he began to write early in life, and also by his love of English classics. That the gift was largely congenital is shown by the high literary attributes of his family. Acquired attributes are not transmitted to the next generation. A glance round his library showed that Spender's horizon was not bounded

[1] *Med. Klinik*, 1911, vii, p. 728.

by medicine alone. "Homo sum; humani nihil a me alienum puto"; and his catholicity was seen on his bookshelves—Burke, Landor, De Quincey, Ruskin, and a host of others.

Life was a joy to Spender in the happy family circle with which he was surrounded. Mrs. Spender, the well-known authoress, had congenial ideals. Of his sons, Mr. J. A. Spender is editor of the *Westminster Gazette*, Mr. Harold Spender and Mr. Hugh Spender are well known to literature, as is also his sister Miss Spender.

The death of Mrs. Spender in 1895 was a crushing blow from which Dr. Spender never recovered. Life was no longer life, and he retired from practice. From thence onwards he was an invalid. Devotedly nursed by his daughter, Miss Spender, the evening of life was peaceful.

In reviewing the life of Dr. Spender as a physician, it may be said that his most striking characteristic was the great value he placed upon general principles, while at the same time no detail was too small to receive his attention. Aided by a marvellous memory, every word in speaking or in writing was carefully weighed, and every quotation accurate. As an instance of his observation in small things reference may be made to the spots on the skin in rheumatoid arthritis, which have since been known as "Spender's spots."

In a lecture on the "Automatic Ways of Man," delivered before a local society, he dealt with the subconscious neurological phenomena of daily life so lucidly that an audience of laymen had no difficulty in following him. The lecture was afterwards published, and is an excellent illustration of his literary style.

Probably his last article was published in the *Westminster Gazette* of March 22nd, 1912, with a title reminiscent of Elia, "On the Decay of the Art of Medical Prescribing."

The city for which he did so much will long remember the charm of his personality; his large circle of friends, the courtly grace of his hospitality; and his professional brethren, the scholarly physician and genial colleague.

ARTHUR E. J. BARKER, F.R.C.S.,

PROFESSOR OF SURGERY, UNIVERSITY COLLEGE, LONDON; TEMPORARY LIEUTENANT-COLONEL, A.M.S.

MR. ARTHUR BARKER, who died on April 8th of pneumonia and nephritis while on active service, was born in Dublin on May 10th, 1850, and was therefore within a month of completing his 66th year. He was the son of Dr. William Barker, and was educated at the Royal College of Surgeons in Ireland and the University of Bonn. He qualified as L.R.C.S.I. in 1870 and L.R.C.P.I. in 1875. He became F.R.C.S.I. in 1876 and was admitted a Fellow of the Royal College of Surgeons of England *ad eundem* in 1880. He was for some time surgeon to the City of Dublin Hospital, and in 1875 he was appointed assistant surgeon to University College Hospital, London, becoming full surgeon in 1885. In 1893 he was appointed professor of surgery in the college. He was also consulting surgeon to the Queen Alexandra Military Hospital, Millbank, and to the Osborne Convalescent Home for Officers. He was Hunterian Professor of Surgery and Pathology at the College of Surgeons in 1889, and had served as Examiner in Surgery at the Victoria University, Manchester, and the London University. He was the author of a *Manual of Surgical Operations* (1887); *Hunterian Lectures on Intracranial Inflammations* (1890); and of articles on diseases of joints in Treves's *System of Surgery* (1895); and caries of the spine, etc., in Holmes's *System of Surgery*, vol. ii (1883); and operations on hernia in Burghard's *System of Operative Surgery* (1909). He delivered the Address in Surgery at the annual meeting of the British Medical Association at Belfast in 1909, taking as his subject the progress of intestinal surgery. He had taken an active part in the development of this branch of his art. His attention may have been called to it by the fact that he himself in his early career suffered from a severe attack of what was then known as perityphlitis. In 1886 he recorded in this JOURNAL what he claimed to be the first successful case of gastro-enterostomy for cancer in England. He also contributed many papers to the medical journals on spinal anaesthesia, on the treatment of gangrenous herniae by enterectomy, and other subjects of abdominal surgery, and on the surgery of joints. In November, 1914, he was appointed temporary lieutenant-colonel in the Royal Army Medical Corps, and served as consulting surgeon to the Southern Command. He found his death in the service of his country at Salonica.

In his early days in London Mr. Barker had to contend with difficulties which might have discouraged a weaker man. But his quiet strength of character bore him up, and as the value of his work came to be recognized he lived down the unpopularity caused by his appointment. He was a lucid and graceful writer and a bold and successful operator. He was a member of the Deutsche Gesellschaft für Chirurgie. In 1874 he published a translation of Heinrich Frey's *Histology and Histo-chemistry of Man*, and his knowledge of German, which was a rarer accomplishment at that time than it is nowadays, was useful to him in his professional advancement.

Colonel Barker married, in 1880, Emilie Blanche, daughter of Julius Delmerge, of Rathkeale, county Limerick, by whom he had one son and four daughters.

Medico-Legal.

IMPRISONMENT FOR ILLEGAL OPERATION.

IN the High Court of Justiciary, Edinburgh, on April 14th, a middle-aged woman, named Jane Robertson, or Edward, was charged with having on October 9th and 11th, 1915, performed, in concert with a man unknown, an illegal operation on a young woman, in consequence of which certain complications resulted and she died in the Maternity Hospital, Glasgow, on November 13th. After evidence had been heard, the jury, by a majority, found the accused guilty, and the Lord Justice-General passed sentence of three years' penal servitude.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ELECTION OF PRESIDENT.

A COMITIA was held on April 17th, Dr. Frederick Taylor, the President, being in the chair.

The President announced that he had nominated the following Fellows to serve on the Committee of the Royal College of Physicians of London and the Royal College of Surgeons of England for the consideration of matters referred to it by the Central Tribunal and other duly authorized bodies: The President, Dr. W. Pasteur, Dr. Sidney H. C. Martin, and Dr. J. Galloway.

President's Address.—The President delivered the usual annual address, in the course of which he referred to the honour conferred on Fellows, Members, and Licentiates during the year, including those received in connexion with war service. He also mentioned the lectures delivered in the College, and the medals, prizes, and scholarships which had been awarded. Reference was also made to the report which had been adopted by the College on the duties of medical practitioners in connexion with criminal abortion. He briefly explained the formation of the Central Medical War Committee, of which he had become a member, and also the election of an Advisory Committee in conjunction with the Royal College of Surgeons of England, to advise the Government through the Central Medical War Committee. The President then read obituary notices on ten Fellows who had died during the year: Dr. Henry Lewis Jones, Sir Peter Eade, Dr. David Bridge Lees, Sir Robert Michael Simon, Dr. Robert Maguire, Dr. George Allan Heron, Dr. George Oliver, Sir William Richard Gowers, Dr. Henry Charlton Bastian, and Dr. Thomas Colcott Fox. The President concluded by thanking the College for the courtesy and assistance extended to him by the officers and Fellows. Sir William Church proposed a vote of thanks to the President for his services during the past year, with a request that the address might be printed. This was duly carried, and the President vacated the chair.

Election of President.—The election of President then took place, and Dr. Frederick Taylor was re-elected by a large majority, and expressed his thanks.

Representative on General Medical Council.—Dr. Norman Moore was re-elected the representative of the College on the General Medical Council.

Reports.—A report from the committee of management was received and adopted, recommending that the Leighton Park School, Reading, should be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry, physics, and biology.

The President then dissolved the comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY council was held on April 13th, when Sir Frederic Eve, Vice-President, was in the chair.

Musk Oxen.—A vote of thanks was given to Lady Strathcona for a donation to the museum of two skeletons of musk oxen.

Prizes.—The Jacksonian Prize for 1915 was not awarded. The

subject for this prize for 1917 is "The causation, diagnosis, and treatment of traumatic aneurysm." The Triennial Prize was not awarded. The subject of this prize for 1916–18 is "The development of the hip-joint and of the knee-joint of men." The Walker Prize was awarded to Mr. William Sampson Handley, for "The improvement in the surgical treatment of mammary carcinoma, due to his pathological investigation."

Election of Members of Twenty Years' Standing to the Fellowship.—Fleet Surgeon Percy William Bassett-Smith, C.B., and Mr. James Frank Colyer were elected Fellows.

The Services.

EXCHANGE.

LIEUTENANT R.A.M.C., Regt. M.O., desires to change with officer holding a position in base hospital, casualty clearing station, or ambulance train, the latter preferred. Address, No. 1500, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

WE regret to announce the death of Dr. Thomas Colcott Fox, physician to the skin department of Westminster Hospital, which occurred on April 11th at the age of 66. We hope to publish an obituary notice in a subsequent issue of the BRITISH MEDICAL JOURNAL.

THE National League for Physical Education and Improvement has arranged a course of lectures on the care of the school child, for school care committees, teachers, and others, to be held at the London Day Training College, Southampton Row, W.C., on Wednesdays at 5.30 p.m., from May 3rd to July 19th; and also a course of lectures, beginning on May 8th, on infant care, for nurses and midwives, on Mondays at 3 p.m. at the Royal Society of Medicine (1, Wimpole Street), and on Fridays at 8 p.m. at the College of Ambulance (3, Vere Street).

THE report of the King Edward Memorial Sanatorium for Tuberculosis at Bhowali, in the hills of the United Provinces, India, for 1915, shows that 15 patients remained from 914 and 130 were admitted during 1915. Eight were under treatment less than a month, and 14 were found non-tuberculous. In the remaining 123 tubercle bacilli were found in 80 per cent. The results were: Arrested 30, much improved 35, improved 20, stationary 27, worse 8, died 3. Treatment is on general open-air lines and by the use of tuberculin. The institution was visited by the Viceroy, Lord Hardinge, and by the Lieutenant-Governor of the United Provinces in October.

THE *Southport Visiter* of April 15th contains an interesting account of the work of the St. John Voluntary Aid Detachment Hospital, Southport, which is said to be the largest in England. The illustrations show that the equipment for every detail of hospital work, including amusements for the patients, is very complete. Since it was opened, a little more than a year ago, 366 men have been returned to their fighting units. There have been only four deaths, a proportion of 1 in 200 of cases admitted. All the officers in charge, medical and lay, and all the workers give their services gratuitously, and the inhabitants of Southport have been most liberal in their support. We are informed that 50 per cent. of the proceeds of the advertisements in the issue of our contemporary containing the article is being given to the funds of the local hospitals.

THE monthly meeting of the Central Midwives Board was held on April 13th. Sir Francis Champneys was in the chair. In reply to its inquiry with regard to the opinion of the Central Midwives Board as to the propriety of visits by a health visitor to the house of a lying-in woman, during the period of a midwife's attendance on the case, it was decided to furnish the Local Government Board with copy of correspondence on the subject, which contained a resolution stating the Central Midwives Board's opinion that, "generally speaking, the inspector of midwives is the only person who ought to visit the house of a lying-in patient during the attendance of the midwife, and that any visit paid to a lying-in woman by any other person than the doctor or midwife must be made by the express permission of the patient." On April 14th a penal session was held, when Sir Francis Champneys again presided, and charges against nine women and an interim report were considered. One midwife was censured, one was cautioned, and the other eight were struck off the roll. Most of the women were registered as in practice before the Act, and the charges against them were the usual ones of ignorance and want of cleanliness, but there were also other serious charges, principally that of neglect in cases of ophthalmia neonatorum.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

PAIN AT ROOT OF NECK AND CARDIAC IRREGULARITY.

DR. ALEXANDER FRANCIS (London, W.) writes: Dr. D. Owen Williams has drawn attention (BRITISH MEDICAL JOURNAL, April 15th) to a symptom which I have found is very common in patients who suffer from the effects of high blood pressure. I have been at a loss to explain the mechanism of the pain, but it disappears on the reduction of the pressure. I have little doubt that high blood pressure was the cause of the trouble in Dr. Williams's patient.

LETTERS, NOTES, ETC.

THE Boylston Medical Prize for 1915 has been awarded to Dr. Wilson G. Smillie of Cambridge, Massachusetts, for an essay entitled *Studies of the Streptococcus of Smith.* The next prize is offered for the best dissertation on the results of original research in medicine; the choice of subject is left to candidates. Dissertations must reach the secretary of the committee, Dr. Harold C. Ernst, Harvard Medical School, Boston, on or before December 31st, 1918. The prize, which is open to public competition, is a sum of £60, with a gold medal.

SMALL-POX IN PERSIA.

DR. JOSEPH SCOTT (Teheran) writes: During some twenty years' practice in the East, where small-pox is always with us, the importance of revaccination has been strikingly brought home to me. The British colony is a small one numbering about 120 persons, yet during the past ten years seven cases have occurred in my practice; three of these were confluent, and all died: the other four made good recoveries. All had been vaccinated in childhood but not since: the average number of marks was two. This is a strikingly high percentage, as it includes children who had been vaccinated and adults who had seen fit to be revaccinated.

OSMOSIS IN THE TREATMENT OF CANCER.

MAJOR C. W. DUGGAN, R.A.M.C., writes: I suggest the following treatment in external carcinoma: After removal of the growth the wound should be left open and painted in the morning and evening with equal parts of ichthyol and glycerine; gauze absorbent wool and a bandage should then be applied. If ichthyol cannot be obtained a dry, non-irritating antiseptic should be substituted. The object of this treatment is to take advantage of the osmotic action of glycerine with a view to preventing a recurrence of the growth and its subsequent diffusion. I also hope that by this method some assistance will have been given to the solution of the cancer problem.

AN ANODYNE POWDER.

LIEUTENANT-COLONEL J. HARDIE NEIL, N.Z.M.C., states that he has found a powder consisting of 5 grains each of veronal, phenacetin, and Dover's powder a very useful combination to combat the pain or distress arising from surgical procedures. After a submucous dissection for instance the patient is given four powders, one to be taken immediately on getting home, a second four hours afterwards, and a third after another four hours if not asleep; the fourth is taken on the succeeding night if the patient does not come up for dressing next day. Usually the patient has a quiet sleep, and awakes in the morning feeling well. In tonsillitis a powder should be taken every four hours, and if relief is not obtained a complication such as peritonsillitis may be assumed. Lieutenant-Colonel Neil thinks that the powder would be useful for quieting patients after injuries received in warfare.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0 5 0
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A whole column	3 10 0
A page	10 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.